RST STEPS IN ARITHMETIC

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The Normal Course in Number

First Steps in Arithmetic

BY

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SUGGESTIONS TO TEACHERS.

THIS book is intended for the use of children of the second school year, and covers the fundamental processes through numbers to twenty. Both in the selection and sequence of subject matter the order of the development of the number sense in children has been carefully considered. In the development of the lessons, care has been taken to insure a clear perception and a firm grasp of the number facts which are the tools of all arithmetical work, and to develop the power to see both with eyes and mind the relations of quantities to each other, which is the basis of the power to apply knowledge.

The lessons are of three kinds, — those not intended for the children at all, but meant as suggestions of method for the teacher, in introducing a new subject; those which are to be used by the children after preparation by the teacher; and those which may be taken at once by the class.

To the first class belong the lessons teaching tens and ones, the first lessons in measures of all kinds, and the lessons directing the children to work, — draw, cut lay tables, etc.

To the second class belongs a part of the lessons illustrated by tablets, measures, fractional parts, etc. When such lessons introduce a new *principle*, they should be preceded by a concrete lesson of instruction without books. When, however, they teach only new *facts* illustrating principles previously taught, they may be taken at once by the class.

To the third class belong all lessons which are applications of facts and principles already taught. Here the children should be left free, as only by making their own applications do they gain the power and the habit of making use of knowledge. If pupils fail in the problem work, it is due either to incompleteness of knowledge of facts or principles, or lack of power to image conditions and see relations. In the first case they need more instruction and practice of the kind which precedes the problems, and in the second case they should themselves diagram the conditions to strengthen the power to picture them.

MATERIAL.

The knowledge of both number facts and relations of quantities should have a concrete basis, but the material should vary according to the nature of the truth to be developed. Mere number facts — addition, subtraction, multiplication, division, fractional parts, and relations of numbers — may all be easily taught with the simplest objects, but the greatest use of these number facts in life is to represent relations of quantities. It is the lack of mental power to see these relations of quantities, and fit to them the corresponding relations of numbers, that prevents children from knowing whether to add or subtract, multiply or divide. It is, therefore, necessary that this power should be developed side by side with the power to manipulate figures. Dry and liquid measures, long and square measures, rectangles, and blocks offer the best possible material for this purpose. Each school should be provided with the measures, and their values and relative values should be taught with the objects themselves and not with pictures. The use of pictures is to represent and recall, not to replace the objects.

REVIEWS.

In the development of each new subject, great care has been taken to introduce in abundance the facts previously taught, and in such a manner as to provide for their retention without tedious repetition and without interfering with the prominence which should be given to the new. The addition examples given just before leaving 11, 12, etc., review all additions already taught if added from the bottom upward. If they are used by the teacher as dictations, they should be given in the same order.

WRITTEN EXERCISES.

Ample provision has been made for the written work of the children in the belief that it is far better for children's eyes to work from book to paper or slate than from blackboard, and in the hope of saving the teachers much blackboard work. Most of the written work should be first read in the class to insure its accuracy. At this age children do not need to write to show the teacher what they know, — that all comes out in the class work, — but to practise putting down what they know, neatly, accurately, and with increasing rapidity. Many of the written exercises should be finally used as dictations.

WORK OF THE FIRST YEAR.

It is supposed that pupils beginning this book have had some number work in the first year. This work should be of the broadest, simplest, and most informal kind, conforming to the child's own ideas. The power to count goes far ahead of the ability to recognize the number of objects in a group, and that in turn precedes the power to recognize the groups in a number. Comparison for difference precedes the idea of comparison for proportion. Formal statements of number facts are not natural to children at any time, and should not be imposed upon them until long familiarity with the fact gives life and meaning to the statement.

The number lessons in the first school year should be conversational exercises in which the children count the objects present, — children, chairs, window-panes, pencils, etc.; count abstractly; recognize numbers in groups not exceeding ten; separate numbers not exceeding ten into two groups; measure lengths in yards, feet, and inches; build lengths not exceeding a foot with inch, two-inch, three-inch, four-inch, five-inch, and six-inch sticks; compare groups and lengths for differences; build rectangles with square inches; learn the names of halves, thirds, and fourths; and compare lines, surfaces, and numbers for proportion as children are able to comprehend.

No figure or written work is desirable during the first year. Drawing, cutting, and laying material can be used to advantage.

E. M. P.

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First Steps in Arithmetic

FIRST STEPS IN ARITHMETIC.

SECTION I.

ADDITION AND SUBTRACTION OF NUMBERS TO SEVEN.
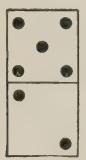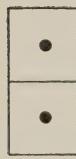
1. *a.* Henry had five cents and earned two cents; how many cents had he then?

b. A man had four cows in one barn and one cow in another barn; how many cows had he in both barns?

c. If a lady has six buttons in one box and one button in another box, how many buttons has she in both boxes?

d. If Susie sewed two buttons on her coat and two buttons on her dress, how many buttons did she sew on in all?

e. George wrote four words on his slate and two words on paper; how many words did he write?

f. I bought a three-cent postage stamp and a two-cent postage stamp; how much did I pay for both?

g. What must I pay for two pencils at one cent each?

h. What would two tops cost at three cents apiece?

i. If Lucy's mother made five buttonholes in the morning and one in the afternoon, how many buttonholes did she make in all?

j. A man bought three horses last week and one this week; how many horses has he now?

k. If George worked for a man four days last week and three days this week, how many days did he work in both weeks?

l. Fanny sewed two buttons on one shoe and one on the other shoe; how many buttons did she sew on?

2. *a.* If John had seven marbles and gave away two, how many marbles had he left?

b. If a man had five horses and sold one, how many had he left?

c. If I had seven sheep and one died, how many had I left?

d. If Mary had four oranges and ate two, how many had she left?

e. If there were six leaves on a twig and two fell off, how many leaves were left on the twig?

f. If there were five frogs on a stone and two jumped into the pond, how many were left on the stone?

g. George had two apples and ate one; how many had he left?

h. A farmer planted six trees and three of them died; how many were left alive?

i. There were six cakes on a plate and Willie took one from the plate; how many were left?

j. Carrie had four roses and gave one to Jennie; how many roses had Carrie left?

k. There were seven apples on a branch and some one picked three of them; how many were left on the branch?

l. If George had three cents and lost one, how many cents had he left?

3. *a.* If there were seven flowers in a vase and Bessie took out five, how many flowers were left in the vase?

b. If in a store were five chairs and four were sold, how many remained in the store?

c. If George had seven cents and spent six, how many cents had he left?

d. If a man had four dollars and spent two, how many dollars had he left?

e. Six little girls were standing and four of them sat down; how many were left standing?

f. If a man had five horses and sold three, how many horses had he left?

g. Two little girls were looking out of a window and one of them went away; how many were left at the window?

h. If Johnnie had six marbles and gave three to his little brother, how many had he left?

i. If I could see six ducks on a pond and five went out of my sight, how many could I still see?

j. If there were four boats tied to a wharf and a man took off three, how many boats were left?

k. John brought in seven baskets of wood; since that, his mother has used four of them. How many baskets are left?

l. If three boys were playing together and two went home, how many were left?

4. *a.* Beginning at the left of the tablets, make a number story for each tablet, beginning with the upper number.

b. Make a number story for each one, beginning with the lower number.

c. Make a number story for each one, taking away the upper number.

d. Make a number story for each one, taking away the lower number.

e. Beginning with the left-hand tablet, add together the dots in each one, beginning at the top.

(Recite: *Five and two are* ——.)

f. Repeat, beginning with the lower number.

g. Take away the upper number. (Recite: *Seven less five is* ——.)

h. Take away the lower number.

i. Beginning at the left, give at sight the number of dots on each tablet.

j. Read these words: One, Two, Three, Four, Five, Six, Seven, one, two, three, four, five, six, seven, and, less, is, are.

WRITTEN EXERCISES.

a. Write the words: One, one, Two, two, Three, three, Four, four, Five, five, Six, six, Seven, seven, and, less, is, are.

b. Beginning with the left-hand tablet, write the addition table, beginning with the upper number. *Ex.* Five and two are seven.

c. Write the addition table, beginning with the lower number.

d. Write the subtraction table, beginning at the left, taking away the upper number. *Ex.* Seven less five is two.

e. Take away the lower number.

Copy and complete:

Four and one are ———.   Six less three is ———.

Seven less three is ———.   Five and one are ———.

Three and three are ———.   One and three are ———.

Five less four is ———.   Seven less two is ———.

Two less one is ———.   One and six are ———.

Two and two are ———.   Four less two is ———.

Four and three are ———.   Two and five are ———.

Three and one are ———.   Five less one is ———.

Six less four is ———.   Seven less six is ———.

Three and two are ———.   Two and one are ———.

Seven less one is ——.

Four and two are ——.

Five less two is ——.

Five less three is ——.

Four less three is ——.

One and five are ——.

Seven less five is ——.

Four less one is ——.

One and one are ——.

Six less two is ——.

Three and four are ——.

Three less·one is ——.

Six less five is ——.

One and two are ——.

Two and four are ——.

Six less one is ——.

Five and two are ——.

Seven less four is ——.

One and four are ——.

Two and three are ——.

Six and one are ——.

Three less two is ——.

Draw pictures showing :

Four wheels and three wheels.

Three tops and three tops.

Two kites and three kites.

Five stars and two stars.

Two rings and one ring.

One bottle and five bottles.

Two boxes and two boxes.

One cat and one cat.

Two cups and four cups.

Six balls and one ball.

Four squares and one square.

One doll and three dolls.

SECTION II.

ADDITION AND SUBTRACTION OF NUMBERS FROM EIGHT TO TEN.
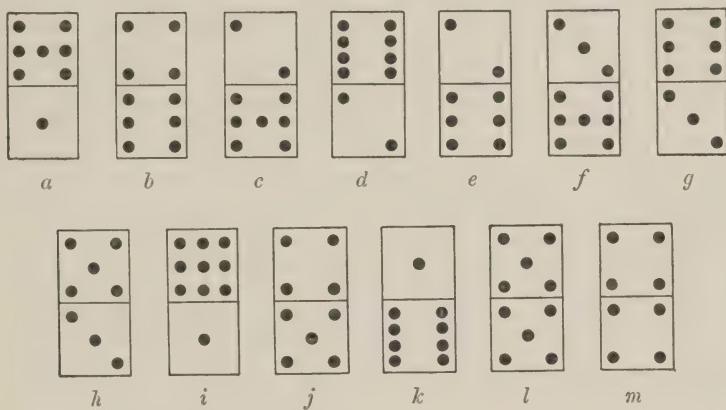
5. *a.* A lady has seven pies in the cupboard and one on the table; how many pies has she?

b. If a milkman sold four quarts of milk to one man and six quarts to another, how many quarts did he sell to both?

c. If there are two ducks on the pond and seven ducks on the bank, how many ducks in both places?

d. If a man had eight horses and bought two more horses, how many horses had he then?

e. There are two trees in my garden and six trees in my sister's garden; how many trees in both our gardens?

f. If there are three apples in one dish and seven apples in another dish, how many apples are in both dishes?

g. Johnnie has six cents in his pocket and three cents in his box ; how many cents has he ?

h. Julia has five roses and three pinks ; how many flowers has she ?

i. There were nine people in a room and one man came in ; how many people were there in the room ?

j. In a class were four boys and five girls ; how many pupils were in the class ?

k. George had one cent and earned eight more ; how much money had he then ?

l. Charles has five cents and Henry has five cents ; how much money have they both ?

m. A man bought four books in one store and four in another store ; how many books did he buy in both stores ?

6. *a.* John had eight marbles and lost one ; how many had he left ?

b. Lucy had ten cents and spent six ; how many had she left ?

c. Henry had nine peaches and gave away seven ; how many had he left ?

d. A man planted ten trees and two of them died ; how many of the trees lived ?

e. Mr. Brown had eight sheep and sold six of them ; how many sheep had he left ?

f. Mrs. Smith went shopping with ten dollars and spent seven dollars ; how much money had she left ?

g. There were nine peaches on a tree and I picked three of them; how many peaches were left on the tree?

h. I had eight dollars and spent three dollars; how much money had I left?

i. There were ten apples in a dish and Will took one out; how many apples were left in the dish?

j. If I had nine dollars and spent five dollars for a table and the rest for a chair, what did the chair cost?

k. If there were nine spoons in the spoonholder and I took out eight, how many were left?

l. There were ten pins in a cushion and I took out five; how many were left in the cushion?

m. Henry had eight cents and bought a top for four cents; how many cents had he left?

7. *a*. A man had eight watches and sold seven; how many had he left?

b. There were ten oranges in a dish and four were eaten; how many were left?

c. If George had nine apples and ate two, how many had he left?

d. If a man had ten horses and sold eight, how many had he left?

e. If George had eight marbles and lost two, how many had he left?

f. There were ten ships in the harbor and three sailed away; how many were left?

g. There were nine birds on a tree and six flew away; how many were left?

h. There were eight roses on a bush and Jennie picked five of them; how many were left?

i. There were ten cakes for supper and nine were eaten; how many were left?

j. Lucy is nine years old and Carrie is four years younger; how old is Carrie?

k. George had nine flags and lost one; how many had he left?

l. There were ten boys playing ball and five went home; how many were left?

m. Henry found eight shells on the beach and gave his sister four; how many had he left?

8. *a.* Beginning at the left, make a number story for each tablet, beginning with the upper number.

b. Make a number story for each one, beginning with the lower number.

c. Make a number story for each one, taking away the upper number.

d. Make a number story for each one, taking away the lower number.

e. Add together the dots in the tablets, beginning at the top.

f. Add together the dots in the tablets, beginning at the bottom.

g. Give at sight the whole number of dots in each tablet.

h. Take away the upper number.

i. Take away the lower number.

j. Read these words: Eight, Nine, Ten, eight, nine, ten.

WRITTEN EXERCISES.

a. Write the words: Eight, eight, Nine, nine, Ten, ten.

b. Beginning with the upper number in each tablet, write the addition table.

c. Beginning with the lower number in each tablet, write the addition table.

d. Write the subtraction table, taking away the upper number.

e. Write the subtraction table, taking away the lower number.

Copy and complete :

Three and seven are ———.	Nine less four is ———.
One and eight are ———.	One and seven are ———.
Nine less two is ———.	Four and five are ———.
Eight less four is ———.	Ten less four is ———.
Ten less nine is ———.	Eight and one are ———.
Four and six are ———.	Two and seven are ———.
Eight less one is ———.	Nine and one are ———.
Six and two are ———.	Ten less two is ———.
Five and five are ———.	Nine less six is ———.
Eight less three is ———.	Two and six are ———.
Five and four are ———.	Eight less five is ———.

Ten less eight is ——.

Six and three are ——.

Seven and one are ——.

Eight less two is ——.

One and nine are ——.

Nine less eight is ——.

Four and four are ——.

Two and eight are ——.

Ten less six is ——.

Five and three are ——.

Ten less seven is ——.

Nine less three is ——.

Ten less five is ——.

Seven and three are ——.

Eight less seven is ——.

Nine less one is ——.

Six and four are ——.

Nine less five is ——.

Seven and two are ——.

Ten less one is ——.

Eight and two are ——.

Three and five are ——.

Eight less six is ——.

Ten less three is ——.

Nine less seven is ——.

Three and six are ——.

9.   Figures and Signs :

Zero,	0.	Five,	5.	Ten,	10.
One,	1.	Six,	6.	And,	$+$.
Two,	2.	Seven,	7.	Less,	— .
Three,	3.	Eight,	8.	Is, are	$=$.
Four,	4.	Nine,	9.		

DRILL TABLE.

a	b	c	d	e	f	g	h	i
4	3	5	3	1	3	2	4	2
3	1	1	3	1	2	1	2	2

j	k	l	m	n	o	p	q	r
6	4	5	7	4	2	8	2	3
1	1	2	1	6	7	2	6	7

s	t	u	v	w	x	y
6	5	9	4	1	5	4
3	3	1	5	8	5	4

a. Make a number story about each of the tablets above, adding the two numbers.

b. Make a number story about each of the tablets, taking away the upper number.

c. Make a number story about each of the tablets, taking away the lower number.

d. Recite the table of additions, beginning each tablet with the upper number.

e. Recite the table of additions, beginning each tablet with the lower number.

f. Recite the table of subtractions, taking away the upper number.

g. Recite the table of subtractions, taking away the lower number.

h. Give the sum of the numbers in each group at sight.

TABLE FOR RECITATION, DICTATION, AND OCCUPATION.

$4 + 1 = ?$	$7 - 6 = ?$	$6 - 4 = ?$	$1 + 7 = ?$	$9 - 5 = ?$
$7 - 3 = ?$	$1 + 5 = ?$	$3 + 2 = ?$	$10 - 2 = ?$	$10 - 3 = ?$
$3 + 3 = ?$	$1 + 2 = ?$	$7 - 1 = ?$	$9 - 1 = ?$	$10 - 9 = ?$
$5 - 4 = ?$	$6 - 5 = ?$	$5 - 2 = ?$	$3 + 5 = ?$	$5 + 4 = ?$
$2 - 1 = ?$	$6 + 1 = ?$	$4 - 3 = ?$	$9 - 2 = ?$	$8 - 2 = ?$
$2 + 2 = ?$	$5 + 1 = ?$	$7 - 5 = ?$	$5 + 5 = ?$	$9 - 3 = ?$
$4 + 3 = ?$	$4 - 2 = ?$	$3 + 7 = ?$	$7 + 1 = ?$	$8 + 1 = ?$
$1 + 1 = ?$	$2 + 1 = ?$	$8 - 1 = ?$	$10 - 7 = ?$	$8 - 5 = ?$
$5 + 2 = ?$	$4 - 1 = ?$	$6 + 3 = ?$	$4 + 5 = ?$	$7 + 2 = ?$
$2 + 3 = ?$	$6 - 1 = ?$	$10 - 6 = ?$	$9 - 6 = ?$	$3 + 6 = ?$
$7 - 2 = ?$	$7 - 1 = ?$	$9 - 4 = ?$	$6 + 4 = ?$	$4 + 6 = ?$
$5 - 1 = ?$	$3 - 2 = ?$	$9 + 1 = ?$	$8 - 6 = ?$	$10 - 8 = ?$
$5 - 3 = ?$	$1 + 3 = ?$	$8 - 7 = ?$	$8 - 4 = ?$	$4 + 4 = ?$
$3 - 1 = ?$	$2 + 5 = ?$	$8 + 2 = ?$	$8 - 3 = ?$	$10 - 5 = ?$
$3 + 4 = ?$	$4 + 2 = ?$	$1 + 8 = ?$	$1 + 9 = ?$	$2 + 7 = ?$
$1 + 4 = ?$	$6 - 2 = ?$	$6 + 2 = ?$	$9 - 7 = ?$	$7 + 3 = ?$
$6 - 3 = ?$	$7 - 4 = ?$	$2 + 8 = ?$	$10 - 4 = ?$	$10 - 1 = ?$
$1 + 6 = ?$	$3 + 1 = ?$	$5 + 3 = ?$	$2 + 6 = ?$	$9 - 8 = ?$

10. *a.* A man bought three cows of one man and two cows of another man; how many cows did he buy?

b. George had nine marbles and gave away three; how many had he left?

c. In a field are five gray horses and three brown ones; how many horses are in the field?

d. George has seven cents in a box and three in his pocket; how many cents has he?

e. Henry had nine marbles and lost four; how many had he left?

f. Lucy had ten cents and spent six; how many had she left?

g. There were nine birds on a tree and two flew away; how many were left?

h. There were eight roses on a bush and Carrie picked four; how many roses were left on the bush?

i. George had six cents and his father gave him two more; how many cents had he then?

j. Jessie has three dolls and Mary has three; how many dolls have they both?

k. Lily wants a slate which costs seven cents; she has five cents; how many more cents does she need to pay for the slate?

l. John has seven marbles and Willie has four; how many more marbles has John than Willie?

m. Jennie bought a book for eight cents and paid for it with a ten-cent piece; how much change did she receive?

n. Carrie picked four roses and Jessie picked two; how many roses did they both pick?

o. Joseph has ten marbles and Henry has five; how many more has Joseph than Henry?

p. Think of seven; separate it into two parts; how many in each part?

q. Think of seven ; separate it into two parts ; take away the smaller part ; what is left?

r. Think of seven ; separate it into two parts; take away the larger part; what is left?

s. Think of eight; separate it into two parts just alike ; what is in each part?

t. Think of eight; separate it into two parts not alike ; what is in each part ?

u. Think of eight; separate it into two parts ; take away one part ; what is left ?

v. Think of nine ; separate it into two parts ; what is in each part ?

w. Think of nine ; separate it into two parts ; take away one part ; what is left ?

x. Think of ten ; separate it into two parts just alike ; what is in each part ?

y. Think of ten ; separate it into two parts not alike ; what is in each part?

z. Think of ten ; separate it into two parts ; take away one part ; what is left ?

WRITTEN EXERCISES.

Write answers to the questions in this lesson.

Ex. *a.* 5 cows. $3 + 2 = 5.$

SECTION III.

MULTIPLICATION AND DIVISION OF NUMBERS TO TEN.

11. *a.* How many tablets are here?

b. How many dots are on each tablet?

c. Begin at the left and add the dots.

d. How many dots in all?

e. How many are five twos?

f. How many dots are on four tablets? How many are four twos?

g. How many dots are on three tablets? How many are three twos?

h. How many dots are on two tablets? How many are two twos?

i. Count by twos to ten.

j. Count backward by twos from ten to zero.

k. Eight is how many twos?

l. Four is how many twos?

m. Ten is how many twos?

n. Six is how many twos?

o. How many pencils at two cents each can I buy for four cents ?

p. What is the cost of three oranges at two cents each ?

q. If I can get two marbles for one cent, how many can I get for three cents ?

r. If George, John, James, and Henry each have two apples, how many apples have they all ?

s. What must I pay for five pencils at two cents each ?

t. What must you pay for four blank books at two cents each ?

u. How many two-cent tops can I buy for six cents ?

v. To how many boys can I give two cents each, if I give ten cents in all ?

w. What are three chairs worth at two dollars each ?

x. A man had five children ; he gave them each two apples ; how many apples did he give them all ?

y. At two dollars each how many chairs can be bought for eight dollars ?

z. If two yards of cloth make an apron, how many aprons can I make from six yards ?

Four times two means the same as *four twos.* How many are four times two ? Two times two ? Three times two ? Five times two ? How many twos are there in eight ? in four ? in ten ? in six ?

WRITTEN EXERCISE.

Three times two are ——.   Six is —— twos.

Five times two are ——.   Eight is —— twos.

Two times two are ——.   Two boys have —— eyes.

Four times two are ——.   Four dogs have —— ears.

Once two is ——.   Three girls have —— hands.

Four is —— twos.   Five men have —— feet.

Ten is —— twos.

PINTS AND QUARTS.

Pint.   Quart.

12. *a.* How many pints does it take to fill a quart measure?

b. How many pint measures can I fill with a quart of milk?

c. How many pints are there in three quarts?

d. How many pints are there in five quarts?

e. How many pints are there in four quarts?

f. How many pints are there in two quarts?

g. I have four quarts of milk; how many pints have I?

h. I have two quarts of molasses; how many pints have I?

i. Jennie has three quarts of vinegar; how many pints has she?

j. Mr. Brown bought five quarts of cider; how many pints did he buy?

k. How many quart measures can I fill with four pints of milk?

l. How many quart measures can I fill with six pints?

m. How many can I fill with ten pints?

n. How many can I fill with eight pints?

<div align="center">WRITTEN EXERCISE.</div>

Ten pints equal —— quarts.   Three quarts equal —— pints.

Four quarts equal —— pints.   Four pints equal —— quarts.

Two pints equal —— quart.   Two quarts equal —— pints.

Five quarts equal —— pints.   Six pints equal —— quarts.

Eight pints equal —— quarts.
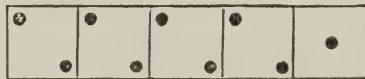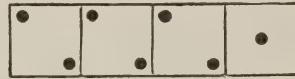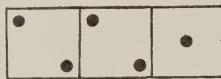
13. *a*. How many are two and one?

b. Three is how many twos, and how many over?

c. How many are two times two?

d. How many are two times two, and one more?

e. Five is how many twos, and how many over?

f. How many are three times two?

g. How many are three times two, and one more?

h. Seven is how many twos, and how many over?

i. How many are four times two?

j. How many are four times two, and one more?

k. Nine is how many twos, and how many over?

l. How many pencils at two cents each can I buy for three cents, and how many cents would I have left?

m. How many days would seven apples last me if I ate two a day?

n. How many quarts are there in five pints?

o. How many quarts are there in seven pints? in nine pints? in three pints?

p. How many two-dollar chairs can I buy for five dollars, and how many dollars left? for three dollars? for seven dollars? for nine dollars?

q. How many hours would it take me to walk six miles if I walk two miles an hour?

r. How long at that rate would it take me to walk three miles? four miles? five miles? eight miles? nine miles? ten miles?

s. How many two-dollar hats can be bought for nine dollars, and how many dollars left? for three dollars? for seven dollars? for five dollars?

t. How many tables at two dollars each can be bought for seven dollars? for five dollars? for three dollars? for nine dollars?

u. How many two-cent tops can be bought for five cents? for three cents? for seven cents? for nine cents?

Four divided by two means *How many twos are there in four? Seven divided by two* means *How many twos are there in seven?*

ORAL AND WRITTEN EXERCISE.

Eight divided by two are ——.

Five divided by two are —— (two, and one over.)

Three divided by two are ——.

Four divided by two are ——.

Two divided by two are ——.

Six divided by two are ——.

Nine divided by two are ——.

Seven divided by two are ——.

Ten divided by two are ——.

14. *a.* How many are three and one?

b. How many threes are there in four, and how many over?

c. How many are three and two?

d. How many threes are there in five, and how many over?

e. How many are two threes?

f. How many are two threes and one more?

g. Seven is how many threes, and how many over?

h. How many are two threes and two more?

i. Eight is how many threes, and how many over?

j. How many are three threes?

k. How many are three threes and one more?

l. Ten is how many threes, and how many over?

m. How many apples at three cents apiece can you buy for four cents?

n. How many three-cent pencils can you buy for five cents? for six cents?

o. How many pairs of boots at three dollars each can be bought for seven dollars?

p. How many oranges at three cents apiece can be bought for eight cents? for five cents? for nine cents? for ten cents?

q. How many three-dollar hats can be bought for nine dollars? for six dollars? for seven dollars? for ten dollars? for eight dollars? for five dollars?

r. If three yards of cloth will make a waist, how many waists can be made from nine yards? from six yards? from five yards? from eight yards? from ten yards?

s. How many are two times three?

t. How many are three times three?

u. Six divided by three are how many?

v. Nine divided by three are how many?

w. Four divided by three are how many, and how many over?

x. Ten divided by three are how many, and how many over?

y. Eight divided by three are how many, and how many over?

z. Five divided by three are how many, and how many over?

ORAL AND WRITTEN EXERCISE.

Two times three are ———.

Three times three are ———.

Five divided by three are ———.

Eight divided by three are ———.

Four divided by three are ———.

Six divided by three are ———.

Ten divided by three are ———.

Seven divided by three are ———.

Nine divided by three are ———.

Three divided by three are ———.

Two clover leaves have ——— leaflets.

Three triangles have ——— sides.
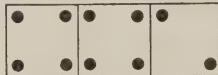
15. *a.* At four cents each, how many slates can you buy for five cents?

b. At four dollars each, how many chairs can you buy for six dollars?

c. At four cents each, how many bananas can you buy for seven cents?

d. How many fours are there in seven? six? five?

e. How many are two times four?

f. How many are two times four, and one?

g. How many are two times four, and two?

h. How many fours are there in eight? in nine? in ten?
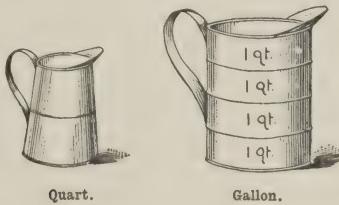
Quart. Gallon.

i. How many quarts does it take to fill a gallon measure?

j. How many gallon measures will eight quarts fill?

k. Two gallons are how many quarts?

l. If a man has five quarts of milk and sells a gallon, how much milk has he left?

m. A gallon and two quarts are how many quarts?

n. Seven quarts is how much more than a gallon?

o. If John buys a gallon of milk and Henry buys three quarts, how many quarts have they both?

p. Eight quarts are how many gallons?

q. Two gallons and one quart are how many quarts?

r. Two gallons and two quarts are how many quarts?

s. If George buys five quarts of milk and Charles five quarts, how many quarts have they both? How many gallons have they both?

t. Nine quarts are how many gallons?

u. Two times four are how many?

v. How many fours are there in seven? in eight? in ten? in six? in nine? in five? in four?

w. If I can walk four miles in an hour, how long will it take me to walk eight miles?

x. If four yards of cloth will make a coat, how many coats can I make from ten yards, and what will I have left?

y. If I have nine tops, to how many boys can I give four each, and how many tops will I have left?

z. What is the cost of two tops, if one top is worth four cents?

<div align="center">WRITTEN EXERCISE.</div>

Two times four are ———.

Seven divided by four are ———.

Six divided by four are ———.

Four divided by four are ———.

Eight divided by four are ———.

Ten divided by four are ———.

Nine divided by four are ———.

At four cents each, two bananas would cost ——— cents.

If four yards of cloth will make a coat, ——— yards will make two coats.

One gallon is ——— quarts.

Two gallons are —— quarts.

In five quarts are —— gallon and —— quart.

In ten quarts are —— gallons and —— quarts.

One gallon and three quarts are —— quarts.

Two gallons and one quart are —— quarts.

Peck.   Bushel.

16. *a.* How many pecks does it take to fill a bushel? to fill two bushels?

b. One bushel and one peck are how many pecks?

c. One bushel and three pecks are how many pecks?

d. Five pecks are how many bushels?

e. Six pecks are how many bushels?

f. Seven pecks are how many bushels?

g. If a man has two bushels of potatoes and sells two pecks, how many pecks has he left?

h. If a man has a bushel of apples and buys two pecks, how many pecks has he?

i. If there are two bushels of apples in one cellar and two pecks in another cellar, how many pecks are in both cellars?

j. If a store has ten pecks of apples and sells two bushels, how many pecks of apples are left?

k. Two bushels and one peck are how many pecks?

l. Nine pecks less one peck are how many pecks?   How many bushels is that?

m. Henry had a bushel and two pecks of potatoes; how many pecks had he in all?

n. A man had two bushels of apples and sold three pecks; how many pecks had he left?

o. There are three pecks of potatoes in one barrel and five pecks in another barrel; how many bushels in both barrels?

p. Five pecks and four pecks are how many bushels?

q. Six pecks and three pecks are how many bushels?

r. Ten pecks less two pecks are how many bushels?

bu. stands for bushel or bushels.   **pk.** stands for peck or pecks.

WRITTEN EXERCISE.

Seven pk. are —— bu. and —— pk.

Nine pk. are —— bu. and —— pk.

Six pk. are —— bu. and —— pk.

Ten pk. are —— bu. and —— pk.

Eight pk. are —— bu.

Two bu. and one pk. are —— pk.

One bu. and three pk. are —— pk.

Two bu. and two pk. are —— pk.

One bu. and two pk. are —— pk.

Four pk. and three pk. are —— bu. and —— pk.

Five pk. and three pk are —— bu.

Six pk. and three pk. are —— bu. and —— pk.
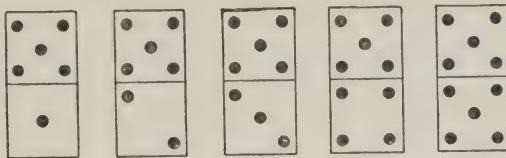
17. *a.* Six is how many fives? Seven? Eight? Nine? Ten?

b. At five cents each, how many tops can you buy for six cents?

c. At five dollars each, how many tables can be bought for seven dollars?

d. If I have eight buttons, to how many girls can I give five buttons, and how many buttons will I have left?

e. If it takes five yards of cloth to make a skirt, how many skirts could I make from nine yards, and how many yards would I have left?

f. How many are two fives?

g. If it takes five yards of cloth to make a skirt, how many skirts will ten yards make?

h. How many fives are there in ten?

i. Ten divided by five are how many?

j. Six divided by five are how many?

k. Seven divided by five are how many?

l. Nine divided by five are how many?

m. Eight divided by five are how many?

n. Five divided by five are how many?

o. How many fingers have we on each hand?

p. How many fingers have we on both hands?

q. How many toes have we on each foot?

r. How many toes have we on both feet?

s. How many cents is a dime?

t. How many five-cent pieces is a dime worth?

u. How many legs has a chair?

v. How many legs have two chairs?

w. How many sides has a triangle?

x. How many sides have two triangles?

y. How many sides has a square?

z. How many sides have two squares?

WRITTEN EXERCISE.

Nine divided by five are ——.

Seven divided by five are ——.

Eight divided by five are ——.

Six divided by five are ——.

Ten divided by five are ——.

Two times five are ——.

Two hands have —— fingers.

Two feet have —— toes.

A dime is worth —— five-cent pieces.
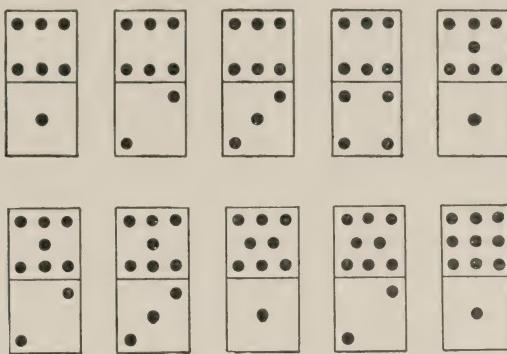
18. *a.* How many are six and one? six and two? six and three? six and four?

b. How many sixes are there in seven? in eight? in nine? in ten?

c. How many are seven and one? seven and two? seven and three?

d. How many sevens are there in eight? in nine? in ten?

e. How many are eight and one? eight and two?

f. How many eights are there in nine? in ten?

g. How many are nine and one?

h. How many nines are there in ten?

i. Seven divided by six are how many?

j. Eight divided by six are how many?

k. Nine divided by six are how many?

l. Ten divided by six are how many?

m. Eight divided by seven are how many?

*n.* Nine divided by seven are how many?

o. Ten divided by seven are how many?

p. Nine divided by eight are how many?

q. Ten divided by eight are how many?

r. Ten divided by nine are how many?

$\times$ $\div$

19. How many are two times two?   *Two times two are four* is written $2 \times 2 = 4$.

Read and write this table :

$2 \times 1 = ?$	$2 \times 3 = ?$	$5 \times 2 = ?$	$2 \times 5 = ?$
$3 \times 3 = ?$	$5 \times 1 = ?$	$4 \times 1 = ?$	$3 \times 1 = ?$
$4 \times 2 = ?$	$2 \times 4 = ?$	$3 \times 2 = ?$	$2 \times 2 = ?$

How many twos are there in four?   Four divided by two are how many?   *Four divided by two are two* is written $4 \div 2 = 2$.

Read and write this table :

$6 \div 2 = ?$	$8 \div 2 = ?$	$4 \div 4 = ?$	$2 \div 2 = ?$
$9 \div 3 = ?$	$3 \div 3 = ?$	$4 \div 2 = ?$	$6 \div 3 = ?$
$8 \div 4 = ?$	$10 \div 2 = ?$	$10 \div 5 = ?$	$5 \div 5 = ?$

How many twos are there in five?

Five divided by two are how many?

Five divided by two are two and one over is written $5 \div 2 = 2$, 1 over.

Read and write this table:

$3 \div 2 = ?$	$7 \div 2 = ?$	$9 \div 8 = ?$	$5 \div 3 = ?$
$7 \div 5 = ?$	$8 \div 7 = ?$	$6 \div 5 = ?$	$6 \div 4 = ?$
$8 \div 3 = ?$	$7 \div 3 = ?$	$9 \div 7 = ?$	$9 \div 5 = ?$
$7 \div 6 = ?$	$9 \div 4 = ?$	$7 \div 4 = ?$	$10 \div 3 = ?$
$10 \div 4 = ?$	$5 \div 2 = ?$	$10 \div 6 = ?$	$10 \div 8 = ?$
$4 \div 3 = ?$	$10 \div 7 = ?$	$9 \div 2 = ?$	$5 \div 4 = ?$
$8 \div 6 = ?$	$8 \div 5 = ?$	$9 \div 6 = ?$	$10 \div 9 = ?$

20. *a.* A man had 10 sheep; he sold 4 of them to one man and 3 of them to another; how many sheep had he left?

b. Henry had 8 apples; he gave 3 of them to George and 2 of them to Carrie; how many apples had he left?

c. Jessie bought a slate for 4 cents and a pencil for 1 cent; she paid for them with a 10-cent piece; how much change did she receive?

d. Carrie went to the store with 10 cents; she bought 5 cents' worth of paper and a lead pencil for 2 cents; how many cents had she left?

e. A lady had 10 oranges; she put 7 of them into a dish and ate 1; the rest she gave to her little girl; how many did the little girl have?

f. At 5 cents apiece, what would 2 tops cost?

g. Mary can knit 3 scallops in an hour; how many can she knit in 2 hours?

h. A man can walk 4 miles an hour; how far can he walk in 2 hours?

i. At 2 dollars each, what would 5 chairs cost?

j At 3 dollars each, what would 3 hats cost?

k. At 2 dollars each, how many chairs could I buy for 8 dollars?

l. If you can walk 4 miles an hour, how many hours would it take you to walk 8 miles?

m. How many separate triangles can you lay with 9 sticks?

n. How many squares could you lay with 8 sticks?

o. How many bushels are there in 9 pecks?

p. How many gallons are there in 10 qt.?

q. How many quarts are there in 7 pt.?

r. If 2 boys can do a piece of work in 3 hours, how long would it take 1 boy to do it?

s. How many benches would it take to seat 10 people, if 5 people can sit on each bench?

t. At 3 cents apiece, how many oranges can you buy for 8 cents?

u. At 4 dollars each, how many tables could you buy for 10 dollars?

v. How many sides have 3 triangles?

w. How many feet have 2 horses?

x. How many ears have 5 boys?

y. How many sides have 2 squares?

z. How many toes has 1 boy?

SECTION IV.

FRACTIONAL PARTS OF A UNIT.
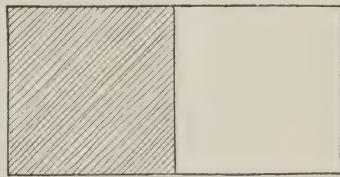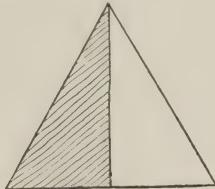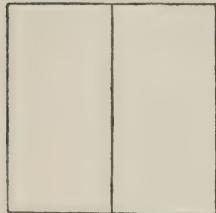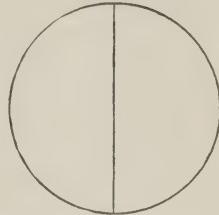
21. *a.* Into how many parts is the apple divided?

b. What is the name of each part?

c. Into how many parts is the circle divided?

d. Which part is the larger?

e. What is the name of each part? What part of a circle is a semi-circle?

f. How is the square divided?

If anything is divided into two equal parts, each part is called one half.

g. How much of the triangle is dark? How much of it is light?

h. How much of the oblong is dark? How much of it is light?

i. If you could eat half of the apple, what would you have left?

j. If the circle were a cookie and you ate half and Jennie ate half, how much would you both eat?

k. If it were a cheese and a man sold half of it, how much of it would he have left?

l. How many halves make a whole pie?

m. How many halves make one cheese?

n. How many halves make one orange?

o. If George ate half an orange this morning and half an orange this noon, how many oranges has he eaten?

p. If a man sold half a cheese yesterday and half a cheese to-day, how many cheeses has he sold?

q. If a lady bought half a bushel of potatoes last month and half a bushel this month, how many bushels of potatoes has she bought?

r. A man sold half a peck of apples to one lady and half a peck to another lady; how many pecks of apples did he sell to both?

s. How many pints make a quart?

t. A pint is what part of a quart?

u. One half apple and one half apple are how many apples?

v. One orange less one half orange is what?

w. One half dollar and one half dollar are what?

x. One dollar less one half dollar is what?

y. One half and one half are how many?

z. One less one half is what?

WRITTEN EXERCISE.

This is a semi-circle. A semi-circle is what part of a circle?

A pint is what part of a quart?

If mamma made a pie and we ate half of it for supper, there is —— of it left.

If there is one half of a cake in the pantry and one half of a cake on the table, both halves are equal to ——.

Johnnie had one dollar and spent half a dollar. He had —— left.
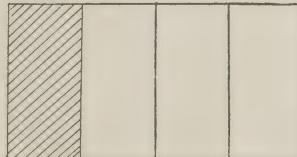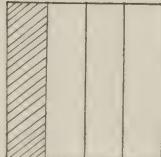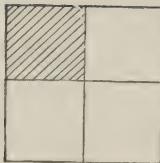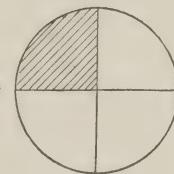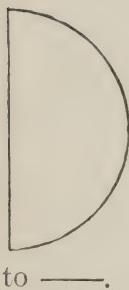
22. *a.* Into how many parts is this melon divided?

b. What is the name of each part?

c. Into how many parts is the circle divided?

d. Into how many parts is the oblong divided?

If anything is divided into four equal parts, each part is called one quarter, or one fourth.

e. What part of the oblong is dark?

f. What part of it is light?

g. What part of the circle is dark?

h. What part of it is light?

i. If I had an apple and ate one fourth of it, how much of it would I have left?

j. If a lady cut out one fourth of a pie, how much of the pie is left?

k. Look at the two squares. What part of the first square is dark? What part of the second?

l. What part of the first square is light? What part of the second?

m. If I ate one fourth of my orange, what part of it is left?

n. If you ate three fourths of your apple and gave the rest to Jennie, what part of it did you give to Jennie?

o. If Carrie had one fourth of a dollar and Lucy had three fourths of a dollar, how many dollars had they together?

p. How many fourths are there in one apple?

q. One orange less one fourth of an orange is what?

r. One cheese less three fourths of a cheese is what?

s. Three fourths of a cake and one fourth of a cake are how many cakes?

t. How many quarts are there in a gallon?

u. A quart is what part of a gallon?

v. Three quarts are what part of a gallon?

w. If I had a gallon of milk and used one fourth of it, what part of it did I have left?

x. How many quarts did I use? How many quarts had I left?

y. A peck is what part of a bushel?

z. Three pecks are what part of a bushel?

WRITTEN EXERCISE.

There are —— quarts in a gallon.

A quart is one —— of a gallon.

There are —— pecks in a bushel.

A peck is one —— of a bushel.

Three fourths of a pie and one fourth of a pie are equal to ——.

If mamma baked a cake and we ate three fourths of it, we have —— of it left.

If Henry had a dollar and spent one fourth of it, he has —— of it left.

If a grocer had a bushel of potatoes and sold a peck, he had —— of a bushel left.

If a lady had a gallon of milk and used a quart, she had —— of a gallon left.

If George's father gave him three quarters of a dollar and his mother gave him one quarter, he had ——.

If Carrie had an apple and gave one fourth of it to Jessie and ate three fourths of it, she had —— left.
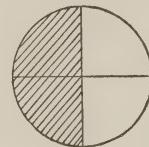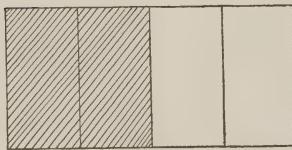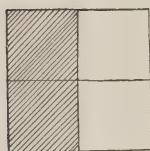
23. *a.* Into how many parts is the square divided?

b. What do we call one part, when anything is divided into four equal parts?

c. What part of the square is dark?

d. What part of it is light?

e. Can you express it differently?

f. Look at the apple.   Into how many pieces is it divided?

g. Which would you rather have, the large piece or the two small ones?

h. What is the name of the large piece?

i. What is the name of each of the small ones?

j. How many fourths are equal to one half?

k. If a man sold one fourth of a cheese on Monday and one fourth on Tuesday, what part of the cheese has he sold?

l. If we ate one fourth of a cake last night and one fourth to-night, what part of the cake is eaten?

m. If Susie spent one fourth of a dollar yesterday and one

fourth of a dollar to-day, how much money did she spend in both days?

n. If a family burned one fourth of a ton of coal one week and one fourth of a ton the next week, how much coal did they burn in the two weeks?

o. If a family bought one fourth of a bushel of potatoes one week and one fourth of a bushel the next week, how much did they buy in both weeks?

p. If a man had one half a cheese and sold one fourth of the cheese, what part of the cheese had he left?

q. If a family had one half of a peck of apples and ate one fourth of a peck, what part of a peck had they left?

r. If Carrie had half a dollar and spent a quarter of a dollar, what had she left?

s. John's mother gave him half an apple and gave Henry a quarter of the apple; what part of the apple did she give them?

t. If a man sold half a cheese to one man and a quarter of a cheese to another man, what part of the cheese did he sell?

u. If we used a quarter of a bushel of potatoes last week and half a bushel this week, how much did we use in both weeks?

v. If a man had three fourths of a cheese and sold half a cheese, what had he left?

w. If John had three quarters of a dollar and spent one quarter of a dollar, what had he left?

x. If a family had three fourths of a ton of coal, how much coal have they left when they have used one fourth of a ton?

y. If a lady had three fourths of a pie and her family ate one half a pie, what part of the pie was left?

z. If a boy had three fourths of a pound of candy and ate one fourth of a pound, how much has he left?

One fourth of an apple and one fourth of an apple are ———.

One half of an orange and one fourth of an orange are ———.

Three fourths of a pound of tea less one fourth of a pound of tea is ———.

Three fourths of a pound of candy less one half a pound of candy is ———.

Carrie has one fourth of an orange; Lucy has one half of an orange; they both have ———.
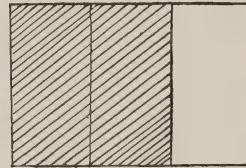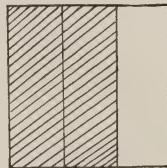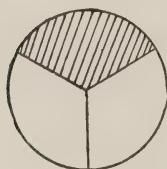
24. *a.* Into how many equal parts is the circle divided? the square? the oblong?

When anything is divided into three equal parts, each part is called one third.

b. What part of the circle is dark?

c. What part of the square is dark?

d. What part of the oblong is dark?

e. What part of the circle is light? the square? the oblong?

f. Beginning with the circle, tell what part of each figure is light and what part is dark.

g. If I spent one third of my money, what part of it had I left?

h. If a man lost one third of his money, what part of it had he left?

i. If George gave away one third of his marbles, what part of them had he left?

j. If a storekeeper had a bushel of potatoes and sold two thirds of them, what part of them had he left?

k. If one third of a cheese has been sold, what part of it is left?

l. If two thirds of a cheese have been sold, what part of it is left?

m. If a man sold one third of a cheese to one man and one third to another, what part of the cheese has he sold? What part of it has he left?

n. One third of a pie and one third of a pie are what part of a pie?

o. One cake less one third of a cake is what part of a cake?

p. One cake less two thirds of a cake is what part of a cake?

q. Two thirds of a pie and one third of a pie are what part of a pie?

<center>WRITTEN EXERCISE.</center>

One third of a cake and one third of a cake are ———.

Two thirds of a pie and one third of a pie are ———.

Two thirds of a cheese less one third of a cheese is ———.

One cheese less one third of a cheese is ——.

One apple less two thirds of an apple is ——.

John has one third of a pie and Henry has one third of a pie. They both have ——.

A man sold two thirds of a cheese to one man and one third to another man; he sold to both ——.

25. *a.* Into how many parts is the first square divided?

b. What is each part called?

c. Into how many parts is the second square divided?

d. What is each part called?

e. What are two parts called?

f. What are three parts called?

g. Into how many parts is the third square divided?

h. What is each part called?

i. What are two parts called?

j. If we rubbed out half of the first square, what part of it would be left?

k. If we rubbed out three fourths of the second square, what part of it would be left?

l. If we rubbed out one third of the third square, what part of it would be left?

m. How much is one half and one fourth ?

n. How much is one half and one half ?

o. How much is three fourths and one fourth ?

p. How much is one fourth and one fourth ?

q. How much is one third and one third ?

r. How much is one third and two thirds ?

s. One less one half is how much ?

t. Three fourths less one fourth is how much ?

u. One less one fourth ?

v. One less three fourths ?

w. One half less one fourth ?

x. Three fourths less one half ?

y. One less one third ?

z. One less two thirds ?

<center>ORAL EXERCISE.</center>

26. *a.* Carrie has one half dollar and Lucy has one half dollar; they both have ——.

b. George has one half of an apple and Henry has one fourth of an apple; they both have ——.

c. There are three fourths of a bushel of potatoes in one barrel and one fourth of a bushel in another; in both barrels there is ——.

d. Jennie walked one fourth of a mile to school and one fourth of a mile home again; in all she walked ——.

e. George ate one third of a pie and Henry ate one third of a pie; they both ate ——.

f. Jessie studied two thirds of an hour on her arithmetic lesson and one third of an hour on her spelling lesson; she studied in all ———.

g. Alice had an apple and gave away one fourth of it; she had left ———.

h. Mary had one dollar and spent three fourths of it; she had left ———.

i. Jessie had three fourths of a dollar and spent one fourth of a dollar; she had left ———.

j. There was a cake on the table; one half of it was eaten; ——— of it was left.

k. A man had three fourths of a bushel of potatoes and sold half a bushel; he had left ———.

l. George had half a dollar and spent a quarter of a dollar; he had left ———.

m. A storekeeper had a piece of cloth and sold one third of it; he had left ———.

n. A family bought a barrel of flour; when they had used two thirds of it, ——— of it was left.

o. A man had two thirds of a cheese; he sold one third of a cheese and had left ———.

WRITTEN EXERCISE.

Copy some of the number stories in this lesson, filling the blanks.

27. One half is written $\frac{1}{2}$.

One third is written $\frac{1}{3}$.

One fourth is written $\frac{1}{4}$.

Two thirds is written $\frac{2}{3}$.

Two fourths is written $\frac{2}{4}$.

Three fourths is written $\frac{3}{4}$.

Illustrate these fractions by drawings or by circles cut into parts.

$\frac{1}{2} + \frac{1}{2}$	$\frac{1}{3} + \frac{1}{3}$	$1 - \frac{1}{3}$	$1 - \frac{2}{3}$
$\frac{1}{4} + \frac{1}{2}$	$\frac{2}{3} + \frac{1}{3}$	$\frac{1}{2} - \frac{1}{4}$	$1 - \frac{3}{4}$
$\frac{1}{4} + \frac{3}{4}$	$1 - \frac{1}{2}$	$\frac{3}{4} - \frac{1}{2}$	$\frac{2}{3} - \frac{1}{3}$
$\frac{1}{4} + \frac{1}{4}$	$1 - \frac{1}{4}$	$\frac{3}{4} - \frac{1}{4}$	

Read the fractions above, giving answers.

Write them without illustrations, giving answers.

SECTION V.

FRACTIONAL PARTS OF NUMBERS TO TEN.

Pint.   Quart.   Peck.   Bushel.

28. *a.* How many pints are in a quart?

b. A pint is what part of a quart?

c. One half of two pints is how many pints?

d. How many quarts make a gallon ?

e. How many quarts are there in half a gallon ?

f. One half of four quarts is how many quarts ?

g. How many quarts are in a peck ?

h. How many quarts are there in half a peck ?

i. One half of eight quarts is how many quarts ?

j. One half of ten cents is how many cents ?

k. If I divide six into two equal parts, how many are in each part ?

l. What is one half of six ? eight ? two ? four ? ten ?

m. Count by ones to three.

n. Count by twos to six.

o. Count by threes to nine.

p. If I divide three cents into three equal parts, what is in each part ?

q. What is one third of three ?

r. If we divide six into three equal parts, what is in each part ?

s. What is one third of six ?

t. If we divide nine into three equal parts, what is in each part ?

u. What is one third of nine ?

v. Count by ones to four.

w. Count by twos to eight.

x. If four is divided into four equal parts, what is in each part?

y. If eight is divided into four equal parts, what is in each part?

z. What is one fourth of four? of eight?

WRITTEN EXERCISE.

If anything is divided into two equal parts, each part is called one ———.

If anything is divided into three equal parts, each part is called one ———.

If anything is divided into four equal parts, each part is called one ———.

One half of two cents is ———.

One half of four apples is ———.

One half of six miles is ———.

One half of eight tops is ———.

One half of ten kites is ———.

One third of three dollars is ———.

One third of six chairs is ———.

One third of nine tables is ———.

One fourth of four bananas is ———.

One fourth of eight oranges is ———.

One half of a quart is ——— pint.

One half of a bushel is ——— pecks.

One fourth of a peck is ——— quarts.

One half of a peck is ——— quarts.

One half of a gallon is ——— quarts.

One fourth of a gallon is ——— quart.

One fourth of a bushel is ——— peck.

Read and write this table :

$\frac{1}{2}$ of 4 = ?	$\frac{1}{3}$ of 3 = ?	$\frac{1}{4}$ of 4 = ?	$\frac{1}{3}$ of 9 = ?	$\frac{1}{4}$ of 8 = ?
$\frac{1}{2}$ of 8 = ?	$\frac{1}{2}$ of 10 = ?	$\frac{1}{3}$ of 6 = ?	$\frac{1}{2}$ of 2 = ?	$\frac{1}{2}$ of 6 = ?

29. *a.* Divide 3 apples equally among 3 children. What part of the apples does each child receive?

b. How many apples does each child receive?

c. How many apples do 2 children receive?

d. What is $\frac{1}{3}$ of 3? $\frac{2}{3}$ of 3?

e. If 3 chairs are worth 3 dollars, what is 1 chair worth?

f. Divide 6 apples into 3 equal parts. How many apples are in each part?

g. How many apples are in 2 parts?

h. What is $\frac{1}{3}$ of 6? $\frac{2}{3}$ of 6?

i. If 3 dolls cost 6 dollars, what is the cost of 1 doll? of 2 dolls?

j. Divide 9 apples into 3 equal parts. How many apples are in each part?

k. How many apples are in 2 parts?

l. What is $\frac{1}{3}$ of 9? $\frac{2}{3}$ of 9?

m. If 3 tables cost 9 dollars, what is the cost of 1 table? of 2 tables?

n. Divide 4 oranges equally among 4 children. How many oranges does each child receive?

o. How many oranges do 2 children receive? 3 children?

p. What is $\frac{1}{4}$ of 4? $\frac{2}{4}$ of 4? $\frac{3}{4}$ of 4?

q. In what other way can you express $\frac{2}{4}$?

r. If 4 pencils cost 4 cents, what is the cost of 1? of 2? of 3?

s. Divide 8 oranges into 4 equal parts. How many oranges are in each part? in 2 parts? in 3 parts?

t. What is $\frac{1}{4}$ of 8? $\frac{2}{4}$ of 8? $\frac{3}{4}$ of 8?

u. If 4 tables cost 8 dollars, what is the cost of 1 table? of 2 tables? of 3 tables?

v. Divide 8 pencils into 8 equal parts. Each part is called *one eighth.*

w. What is $\frac{1}{8}$ of 8? $\frac{2}{8}$ of 8? $\frac{3}{8}$ of 8? $\frac{4}{8}$ of 8? $\frac{5}{8}$ of 8? $\frac{6}{8}$ of 8? $\frac{7}{8}$ of 8?

x. If 8 pencils cost 8 cents, what is the cost of 1 pencil? of 3? of 5? of 2? of 7? of 6? of 4?
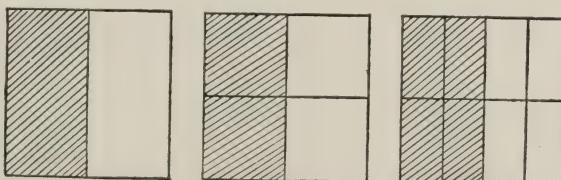
y. What part of the first square is dark? of the second? of the third?

z. $\frac{1}{2}$ is equal to how many fourths? to how many eighths?

SECTION VI.

MISCELLANEOUS REVIEW.

30. TABLES FOR RECITATION, OCCUPATION, AND DICTATION.

a.

$\frac{1}{2}$ of $4 = ?$	$\frac{1}{3}$ of $3 = ?$	$\frac{2}{3}$ of $3 = ?$	$\frac{1}{3}$ of $9 = ?$
$\frac{2}{3}$ of $6 = ?$	$\frac{2}{4}$ of $8 = ?$	$\frac{1}{3}$ of $6 = ?$	$\frac{3}{8}$ of $8 = ?$
$\frac{2}{4}$ of $4 = ?$	$\frac{1}{2}$ of $10 = ?$	$\frac{4}{8}$ of $8 = ?$	$\frac{1}{2}$ of $6 = ?$
$\frac{1}{2}$ of $8 = ?$	$\frac{1}{4}$ of $8 = ?$	$\frac{2}{3}$ of $9 = ?$	$\frac{2}{8}$ of $8 = ?$
$\frac{5}{8}$ of $8 = ?$	$\frac{3}{4}$ of $8 = ?$	$\frac{3}{4}$ of $4 = ?$	$\frac{7}{8}$ of $8 = ?$
$\frac{1}{8}$ of $8 = ?$	$\frac{1}{4}$ of $4 = ?$	$\frac{1}{2}$ of $2 = ?$	$\frac{6}{8}$ of $8 = ?$

b.

$4 + 1 = ?$	$8 + 2 = ?$	$5 + 1 = ?$	$3 + 5 = ?$
$7 - 3 = ?$	$3 + 1 = ?$	$4 - 2 = ?$	$6 - 2 = ?$
$3 + 7 = ?$	$6 - 4 = ?$	$1 + 9 = ?$	$5 - 3 = ?$
$8 - 1 = ?$	$10 - 9 = ?$	$9 - 7 = ?$	$9 - 6 = ?$
$1 + 8 = ?$	$5 + 4 = ?$	$1 + 3 = ?$	$2 + 6 = ?$
$6 + 2 = ?$	$3 + 3 = ?$	$2 + 5 = ?$	$8 - 5 = ?$
$1 + 1 = ?$	$5 + 4 = ?$	$8 - 2 = ?$	$8 - 6 = ?$
$5 + 2 = ?$	$4 + 6 = ?$	$9 - 3 = ?$	$4 + 5 = ?$
$9 - 2 = ?$	$10 - 8 = ?$	$3 + 2 = ?$	$4 + 3 = ?$
$2 + 8 = ?$	$6 + 3 = ?$	$9 - 5 = ?$	$5 - 2 = ?$
$8 - 7 = ?$	$7 - 2 = ?$	$1 + 2 = ?$	$6 + 4 = ?$
$7 - 5 = ?$	$3 + 6 = ?$	$9 - 8 = ?$	$2 + 1 = ?$
$5 + 5 = ?$	$10 - 6 = ?$	$4 + 4 = ?$	$8 + 1 = ?$
$3 + 4 = ?$	$2 + 7 = ?$	$10 - 5 = ?$	$7 + 3 = ?$
$8 - 4 = ?$	$5 + 3 = ?$	$2 - 1 = ?$	$7 - 6 = ?$
$4 + 1 = ?$	$7 - 2 = ?$	$2 + 2 = ?$	$4 - 1 = ?$
$6 - 5 = ?$	$7 + 1 = ?$	$9 - 4 = ?$	$9 - 1 = ?$

$6 + 1 = ?$	$10 - 7 = ?$	$9 + 1 = ?$	$2 + 4 = ?$
$8 - 3 = ?$	$6 - 3 = ?$	$1 + 7 = ?$	$1 + 5 = ?$
$7 - 1 = ?$	$1 + 6 = ?$	$3 - 1 = ?$	$10 - 4 = ?$
$3 - 2 = ?$	$10 - 3 = ?$	$4 - 3 = ?$	$4 + 2 = ?$
$10 - 1 = ?$	$2 + 3 = ?$	$5 - 1 = ?$	
$7 - 4 = ?$	$6 - 1 = ?$	$10 - 2 = ?$	

c.

$2 \times 1 = ?$	$10 \div 6 = ?$	$5 \div 5 = ?$	$2 \times 3 = ?$
$9 \div 3 = ?$	$4 \times 1 = ?$	$6 \div 3 = ?$	$10 \div 2 = ?$
$8 \div 6 = ?$	$3 \div 2 = ?$	$5 \times 2 = ?$	$3 \div 3 = ?$
$7 \div 3 = ?$	$10 \div 4 = ?$	$10 \div 10 = ?$	$3 \times 1 = ?$
$3 \times 2 = ?$	$8 \div 7 = ?$	$8 \div 3 = ?$	$9 \div 5 = ?$
$9 \div 7 = ?$	$5 \div 2 = ?$	$10 \div 3 = ?$	$8 \div 8 = ?$
$9 \div 2 = ?$	$9 \div 8 = ?$	$2 \div 2 = ?$	$3 \times 3 = ?$
$5 \div 3 = ?$	$10 \div 8 = ?$	$5 \times 1 = ?$	$8 \div 4 = ?$
$6 \div 2 = ?$	$4 \div 4 = ?$	$2 \times 4 = ?$	$8 \div 2 = ?$
$7 \div 6 = ?$	$4 \div 2 = ?$	$10 \div 5 = ?$	$8 \div 5 = ?$
$7 \div 2 = ?$	$7 \div 5 = ?$	$2 \times 2 = ?$	$6 \div 5 = ?$
$9 \div 4 = ?$	$4 \div 3 = ?$	$6 \div 6 = ?$	$9 \div 6 = ?$
$10 \div 7 = ?$	$5 \div 4 = ?$	$2 \times 5 = ?$	$6 \div 4 = ?$
$7 \div 4 = ?$	$10 \div 9 = ?$	$4 \times 2 = ?$	$7 \div 7 = ?$

31. Add at sight, giving results only:

6	5	4	6	2	7	1	6	3
1	2	6	3	8	1	9	2	2
3	1	8	7	4	2	5	3	2
7	1	1	2	4	1	4	1	2
3	4	4	5	4	5	5	1	2
3	1	3	1	2	3	5	6	5

6	3	8	1	9	2	2	7	1
4	6	2	7	1	6	3	3	8

2	1	4	1	1	3	1	2	3
7	2	5	3	4	4	5	4	5

Subtract at sight :

10	9	8	7	10	6	5	4	10
2	7	4	3	3	2	1	2	4

9	9	8	7	6	10	5	4	9
1	8	5	4	3	5	2	3	2

2	10	8	10	7	6	5	9	8
1	1	6	6	5	4	3	3	7

7	6	5	9	10	8	3	9	8
6	5	4	4	7	1	1	5	2

7	3	10	9	8	7	6	4	10
1	2	8	6	3	2	1	1	9

Multiply :

$1 \times 2 = ?$	$5 \times 2 = ?$	$2 \times 2 = ?$	$3 \times 2 = ?$
$2 \times 3 = ?$	$1 \times 5 = ?$	$2 \times 5 = ?$	$1 \times 3 = ?$
$1 \times 4 = ?$	$4 \times 2 = ?$	$2 \times 4 = ?$	$3 \times 3 = ?$

Divide :

$9 \div 3 = ?$	$6 \div 2 = ?$	$6 \div 3 = ?$	$10 \div 5 = ?$
$8 \div 4 = ?$	$4 \div 2 = ?$	$8 \div 2 = ?$	$10 \div 2 = ?$

SECTION VII.

32. NUMBERS FROM TEN TO TWENTY ~ ~D O~~S.
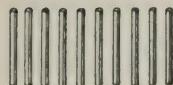
Ten ones   are   one ten.

One ten and one one are *eleven.*

One ten and two ones are *twelve.*

One ten and three ones are *thirteen.*

One ten and four ones are *fourteen.*

One ten and five ones are *fifteen.*

One ten and six ones are *sixteen.*

One ten and seven ones are *seventeen.*

One ten and eight ones are *eighteen.*

One ten and nine ones are *nineteen.*

Two tens are *twenty.*

EXERCISE (without books).

(Each child provided with two bundles of counters, ten in each bunch.)

Lay one ten and five ones.   How many did you lay ?

One ten and three ones.   How many is it ?

One ten and two ones ?   How many ?

One ten and six ones.   How many ?

One ten and eight ones.   How many ?

One ten and four ones.   How many ?

One ten and seven ones.   How many ?

One ten and nine ones.   How many ?

One ten and one one.   How many ?

Two tens.   How many?

Lay *fourteen.*   How many tens and how many ones did you lay ?

Lay *seventeen.*   How many tens and how many ones is seventeen ?

Lay *thirteen.*   How many tens and how many ones is thirteen ?

Lay *sixteen.*   How many tens and how many ones is sixteen ?

Lay *eighteen.*   How many tens and how many ones is eighteen ?

Lay *twelve.* How many tens and how many ones is twelve?

Lay *fifteen.* How many tens and how many ones is fifteen?

Lay *eleven.* How many tens and how many ones is eleven?

Lay *nineteen.* How many tens and how many ones is nineteen?

Lay *twenty.* How many tens and how many ones is twenty?

33. Lay *eleven.* What did you lay?

Eleven is written 11 in figures.

Lay *twelve.* What did you lay?

Twelve is written 12 in figures.

What do you suppose the 1 stands for? the 2?

Lay *thirteen.* What did you lay?

Thirteen is written 13.

What stands for the ones? What stands for the ten?

Lay all the numbers to twenty, one at a time, pupils telling what each number is in tens and ones, teacher writing the figures, and teaching that when a number has two figures the first figure at the right stands for *ones,* and the second for *tens.*

The purpose of these lessons immediately following is quite different from the addition of groups below ten, and those to come later of groups giving a result greater than ten. Those illustrated by groups are simple combinations of digits, and must be memorized as facts upon which higher additions depend. Those illustrated in tens and ones depend on the facts below ten already learned and do not need to be drilled upon as facts, but can be seen as a principle and recited at sight if the principle is grasped and numbers below ten are thoroughly known. They can therefore be gone over rapidly, the one thing to be kept in mind being the correspondence between them and numbers below ten.

ADDITION AND SUBTRACTION.

34. Lay ten and one.

Ten and one are how many?
One and ten are how many?
Eleven less one are how many?
Eleven less ten are how many?

Lay ten and two.

Ten and two are how many?
Eleven and one are how many?
One and how many are twelve?

Two and how many are twelve? Ten and how many? Eleven and how many?

Twelve less ten are how many? less two? less one? less eleven? less twelve?

ORAL AND WRITTEN EXERCISE.

ADDITION.

10	1	11	10
1	1	1	2

SUBTRACTION.

1	11	11	11	2	12	12	12	12	12
1	1	11	10	1	1	11	10	2	12

35. Lay ten and three.

Ten and three are how many?

Eleven and two are how many?

Twelve and one are how many?

One and how many are thirteen? Three and how many? Ten and how many? Two and how many? Twelve and how many? Eleven and how many?

Thirteen less ten are how many? less one? less three? less eleven? less two? less twelve? less thirteen?

ORAL AND WRITTEN EXERCISE.

ADDITION.

1	2	10	12	11
2	1	3	1	2

SUBTRACTION.

3	3	3	13	13	13	13	13	13	13
1	2	3	10	1	11	2	12	3	13

36. Lay ten and four.

Ten and four are how many?

Eleven and three are how many?

Twelve and two are how many?

Thirteen and one are how many?

One and how many are fourteen? Three and how many? Two and how many? Four and how many? Ten and how many? Twelve and how many? Eleven and how many? Thirteen and how many?

Fourteen less four are how many? less one? less twelve? less ten? less three? less thirteen? less two? less eleven? less fourteen?

ORAL AND WRITTEN EXERCISE.

ADDITION.

1	3	2	10	11	13	12
3	1	2	4	3	1	2

SUBTRACTION.

4	14	14	4	14	14
1	1	11	2	2	12

4	14	14	4	14	14
3	3	13	4	4	14

37. Lay ten and five.

Ten and five are how many? Eleven and four? Twelve and three? Thirteen and two? Fourteen and one?

One and how many are fifteen? Eleven and how many? Three and how many? Thirteen and how many? Four and how many? Fourteen and how many? Two and how many? Twelve and how many? Five and how many? Ten and how many?

Fifteen less one are how many? less eleven? less three? less thirteen? less two? less twelve? less four? less fourteen? less five? less fifteen? less ten?

ORAL AND WRITTEN EXERCISE.

ADDITION.

10	1	11	2	12	3	13	4	14
5	4	4	3	3	2	2	1	1

SUBTRACTION.

5	15	15	5	15	15	5	15
1	1	11	2	2	12	3	3

15	5	15	15	5	15	15
13	4	4	14	5	5	15

ORAL EXERCISE.

38. *a.* George had 10 pencils and found another; how many pencils had he then?

b. Henry had 15 cents and spent 2; how many had he left?

c. Cora had 11 books and Susie had 4; how many had they both?

d. Jennie earned 10 cents and Sarah earned 4 cents; how much did they both earn?

e. Laura had 14 cents and spent 3; how many cents had she left?

f. John walked 10 miles in the morning and 5 miles in the afternoon; how far did he walk in all?

Make number stories about these :

12 + 2	12 + 3	15 − 3	15 − 4	13 − 12
11 + 3	11 + 1	14 − 3	14 − 1	15 − 12
12 + 1	11 + 4	15 − 1	14 − 13	14 − 11
13 + 2	13 + 1	13 − 1	15 − 14	15 − 13
11 + 2	12 − 1	15 − 2	14 − 12	13 − 11
14 + 1	14 − 2	13 − 3	12 − 11	15 − 11

EXERCISES.

39. *a.* Add, giving results at sight :

b. Add, putting 1 in place of * :

*1	*1	*1	*0	*3	*1	*4	*2	*5	*3
3	0	4	3	2	1	0	1	0	1

*0	*2	*2	*4	*0	*3	*1	*0	*0	*0
2	3	2	1	4	0	2	1	5	0

EXERCISES.

a. Subtract, giving remainders at sight :

b. Subtract, putting 1 in place of * :

*5	*4	*2	*5	*4	*2	*5	*4	*5	*2
1	2	0	2	3	1	3	4	4	2

*3	*5	*1	*3	*7	*4	*3	*5	*4	*3
0	5	0	1	1	0	2	0	1	3

EXERCISE.

Subtract:

15	14	12	15	14	12	15	14	15	12
11	12	10	12	13	11	13	14	14	12

13	15	11	13	11	14	13	15	14	13
10	15	10	11	11	10	12	10	11	13

ORAL AND WRITTEN EXERCISE

Complete these additions:

11	11	10	11	12	13	10	12
14	15	13	12	13	14	12	15

12	14	10	13	11	10	10
14	15	14	15	13	1ι	15

Complete these subtractions:

15	14	12	15	14	15	15	12
14	12	11	13	11	12	11	10

14	13	11	13	15	14	13
10	12	10	11	10	13	10

15 — ? = 4	14 — ? = 3	12 — ? = 0	13 — ? = 2
14 — ? = 2	12 — ? = 1	13 — ? = 3	11 — ? = 0
12 — ? = 2	15 — ? = 2	13 — ? = 0	14 — ? = 4
15 — ? = 3	14 — ? = 0	15 — ? = 0	13 — ? = 1
14 — ? = 1	15 — ? = 1	11 — ? = 1	15 — ? = 5

40. Lay ten and six.

Ten and six are how many?

Eleven and five? Twelve and four? Thirteen and three? Fourteen and two? Fifteen and one?

One and how many are sixteen? Eleven and how many? Three and how many? Thirteen and how many? Two and how many? Twelve and how many? Five and how many? Fifteen and how many? Six and how many? Four and how many? Fourteen and how many? Ten and how many?

Sixteen less one are how many? less eleven? less three? less thirteen? less five? less fifteen? less four? less fourteen? less six? less sixteen? less ten? less two? less twelve?

ORAL AND WRITTEN EXERCISE.

ADDITION.

10	1	11	2	12	3	13	4	14
6	5	5	4	4	3	3	2	2

SUBTRACTION.

6	16	16	6	16	16	6	16
1	1	11	2	2	12	3	3

16	6	16	16	6	16	16
13	4	4	14	5	5	15

41. Lay ten and seven.

Ten and seven are how many? Eleven and six? Twelve and five? Thirteen and four? Fourteen and three? Fifteen and two? Sixteen and one?

One and how many are seventeen? Eleven and how many? Two and how many? Twelve and how many? Three and how many? Thirteen and how many? Seven and how many? Four and how many? Fourteen and how many? Five and how many? Fifteen and how many? Six and how many? Sixteen and how many? Ten and how many?

Seventeen less one are how many? less eleven? less three? less thirteen? less five? less fifteen? less two? less twelve? less six? less sixteen? less ten? less seven? less seventeen? less four? less fourteen?

ORAL AND WRITTEN EXERCISE.

ADDITION.

10	1	11	2	12	3	13
7	6	6	5	5	4	4

4	14	5	15	6	16
3	3	2	2	1	1

SUBTRACTION.

7	17	17	7	17	17	7
1	1	11	2	2	12	3

17	17	7	17	17	7	17
3	13	4	4	14	5	5

17	7	17	17	7	17	17
15	6	6	16	7	7	17

42. Lay ten and eight.

How many are ten and eight? eleven and seven? twelve and
six? thirteen and five? fourteen and four? fifteen and three?
sixteen and two? seventeen and one?

One and how many are eighteen? Eleven and how many?
Five and how many? Fifteen and how many? Seven and how
many? Seventeen and how many? Two and how many? Twelve
and how many? Six and how many? Sixteen and how many?
Four and how many? Fourteen and how many? Eight and how
many? Three and how many? Thirteen and how many? Ten
and how many?

Eighteen less one are how many? less eleven? less three?
less thirteen? less seven? less seventeen? less four? less four-
teen? less six? less sixteen? less eight? less eighteen? less two?
less twelve? less five? less fifteen? less ten?

ORAL AND WRITTEN EXERCISE.

ADDITION.

10	1	11	2	12	3	13	4
8	7	7	6	6	5	5	4

14	5	15	6	16	7	17
4	3	3	2	2	1	1

SUBTRACTION.

8	18	18	8	18	18	8	18
1	1	11	2	2	12	3	3

18	8	18	18	8	18	18	8
13	4	4	14	5	5	15	6

18	18	8	18	18	8	18	18
6	16	7	7	17	8	8	18

43. Lay ten and nine.

Ten and nine are how many? Eleven and eight? Twelve and seven? Thirteen and six? Fourteen and five? Fifteen and four? Sixteen and three? Seventeen and two? Eighteen and one?

One and how many are nineteen? Eleven and how many? Four and how many? Fourteen and how many? Six and how many? Sixteen and how many? Three and how many? Thirteen

and how many ? Seven and how many ? Seventeen and how many ?
Nine and how many ? Two and how many ? Twelve and how
many ? Eight and how many ? Eighteen and how many ? Ten
and how many ? Five and how many ? Fifteen and how many ?

Nineteen less one are how many ? less eleven ? less three ?
less thirteen ? less five ? less fifteen ? less two ? less twelve ? less
eight ? less eighteen ? less nine ? less nineteen ? less six ? less six-
teen ? less four ? less fourteen ? less seven ? less seventeen ? less
ten ?

ORAL AND WRITTEN EXERCISE.

ADDITION.

10	8	18	7	17	6
9	1	1	2	2	3

16	5	15	4	14	3
3	4	4	5	5	6

13	2	12	1	11
6	7	7	8	8

SUBTRACTION.

9	19	19	9	19	19
1	1	11	2	2	12

9	19	19	9	19	19
3	3	13	4	4	14

9	19	19	9	19	19
5	5	15	6	6	16

9	19	19	9	19	19
7	7	17	8	8	18

ORAL EXERCISE.

44. *a.* John has 14 marbles and Henry has 4; how many marbles have they both?

b. Joseph has 19 cents and Harry has 12 cents; how many more cents has Joseph than Harry?

c. George walked 19 miles and Ned walked 11 miles; how much farther did George walk than Ned?

d. Albert had 18 apples and gave away 12; how many apples had he left?

e. Carrie dressed 16 dolls and sold 11 of them; how many were left?

f. There are 19 pupils in one class and 15 in another; how many more in one class than in the other?

g. James started to walk 18 miles; when he had walked 11 miles how much farther had he to go?

h. A man has 17 cows and 12 sheep; how many more cows has he than sheep?

i. Willie has 18 books and Albert has 13; how many more books has Willie than Albert?

j. George has 17 oranges and 14 peaches; how many more oranges than peaches has he?

k. In an orchard are 12 pear trees and 7 apple trees; how many of both are there?

l. In a dish are 14 red roses and 5 white roses; how many roses are in the dish?

m. On a table are 11 roses and 7 pinks; how many flowers are on the table?

Make a number story for each of these:

12 + 4	11 + 7	19 − 3	19 − 5	16 − 11
13 + 5	12 + 5	17 − 2	18 − 14	17 − 12
14 + 3	16 − 5	18 − 7	19 − 13	19 − 11

45.   ORAL AND WRITTEN EXERCISE.

*8	*6	*5	*6	*9	*7	*6
*0	*1	*2	*3	*0	*1	*2

*8	*7	*4	*0	*4	*5	*2
*1	*2	*4	*7	*3	*4	*4

*3	*6	*7	*5	*5	*4	*0
*3	*0	*0	*1	*3	*2	*8

*1	*2	*3	*0	*1	*2	*1
*6	*5	*6	*9	*7	*6	*8

*3	*2	*0	*4	*3	*1
*5	*7	*6	*5	*4	*5

a. Give sums at sight.

b. Give sums at sight, substituting 1 for upper *.

c. Give sums at sight, substituting 1 for lower *.

*9	*9	*8	*7	*6	*9	*9	*8	*7
0	7	4	3	2	1	8	5	4

*6	*9	*9	*8	*7	*6	*7	*6	*9
3	2	9	6	5	4	2	1	3

*8	*8	*7	*6	*9	*8	*7	*7	*6
0	7	6	5	4	1	0	7	6

*9	*8	*7	*6	*8	*9	*8
5	2	1	0	8	6	3

a. Subtract, giving remainders at sight.

b. Subtract, substituting 1 for *.

Subtract:

19	19	18	17	16	19	19	18	17
10	17	14	13	12	11	18	15	14

16	19	19	18	17	16	17	16	19
13	12	19	16	15	14	12	11	13

18	18	17	16	19	18	17	17	16
10	17	16	15	14	11	10	17	16

19	18	17	16	18	19	18
15	12	11	10	18	16	13

SECTION VIII.

INCHES AND SQUARE INCHES.

46. This line is an inch long. Draw a line an inch long (or lay a one-inch stick). Draw one two inches long. How much longer is the two-inch line than the one-inch line? How many times as long is it? How many one-inch sticks are needed to make a two-inch line? What part of the two-inch line is the same length as the one-inch line?

Make a three-inch line. How much longer is it than the one-inch line? than the two-inch line?

What part of the three-inch line is the same length as the one-inch line? What part of the three-inch line is the same length as the two-inch line?

Make a four-inch line. How much longer is it than the one-inch line? than the two-inch line? than the three-inch line? How many two-inch lines will make a four-inch line? What part of the four-inch line is the same length as the one-inch line? What part is the same length as the two-inch line? What part is the same length as the three-inch line?

Make a line five inches long. Divide it into five equal parts. How long is each part?

If anything is divided into five equal parts, each part is called one fifth.

How many fifths in the whole? If one fifth is taken away, what part of the line is left? If two fifths are taken away, what part of the line is left? If three fifths are taken away, what part is left? If four fifths are taken away, what part is left?

What is one fifth of five inches? Three fifths of five inches? Two fifths of five inches? Four fifths of five inches? How much longer is the five-inch line than the one-inch line? than the four-inch line? than the three-inch line? than the two-inch line?

47. Make a line six inches long. How many one-inch lines does it take to make it? How many two-inch lines? How many three-inch lines? How much longer is it than a one-inch line? than a five-inch line? than a three-inch line? than a two-inch line? than a four-inch line?

Divide it into six equal parts? How long is each part?

If anything is divided into six equal parts, each part is called one sixth.

How many sixths in the whole? If one sixth of the line is taken away, what part of the line is left? If two sixths are taken away, what part is left? If five sixths are taken away, what part is left? If three sixths are taken away, what part is left? If four sixths are taken away, what part of the line is left?

Divide the line into two equal parts. What is each part called? How many sixths are equal to one half?

Divide the line into three equal parts. What is each part called? How many sixths are equal to one third? What is one sixth of six inches? What is one third of six inches? What is one half of six inches? How much longer is the six-inch line than the one-inch line? than the four-inch line? than the two-inch line? than the five-inch line? than the three-inch line?

Make a seven-inch line. How much longer is it than the one-inch line? than the six-inch line? than the four-inch line? than

the two-inch line? than the five-inch line? than the three-inch line?

How many times will it contain the one-inch line? the two-inch line? the three-inch line? the four-inch line? the five-inch line? the six-inch line?

Divide it into seven equal parts. Each part is called *one seventh.*

What is one seventh of seven inches? If one seventh of the line is taken away, what part of the line is left? If three sevenths of it are taken away, what part is left? If six sevenths of it are taken away, what part is left? If four sevenths of it are taken away, what part is left? If five sevenths of it are taken away, what part is left? If two sevenths of it are taken away, what part is left?

Make an eight-inch line. How much longer is it than the one-inch line? than the three-inch line? than the seven-inch line? than the five-inch line? than the two-inch line? than the six-inch line? than the four-inch line?

Divide it into eight equal parts. Each part is called *one eighth.* What is one eighth of eight inches? If one eighth of the line is taken away, what part of the line will be left? If six eighths are taken away, what part will be left? If four eighths are taken away, what part will be left? If seven eighths are taken away, what part will be left? If five eighths are taken away, what part will be left? If two eighths of the line is taken away, what part will be left? If three eighths of the line is taken away, what part of it will be left?

How many times will it contain the one-inch line? the two-inch line? the three-inch line? the four-inch line? the five-inch line? the six-inch line? the seven-inch line?

Divide it into two equal parts. What is each part called? How many eighths equal one half? Divide it into fourths. How many eighths equal one fourth?

48. Make a line nine inches long. How much longer is it than the one-inch line? than the seven-inch line? than the six-inch line? than the four-inch line? than the five-inch line? than the three-inch line? than the two-inch line? than the eight-inch line.

How many times will it contain the one-inch line? the three-inch line? the two-inch line? the four-inch line? the five-inch line? the six-inch line? the seven-inch line? the eight-inch line?

Divide it into nine equal parts. Each part is called *one ninth.* If one ninth of the line is taken away, what part will be left? If seven ninths are taken away, what part will be left? If three ninths are taken away, what part will be left? If five ninths are taken away, what part will be left? If eight ninths are taken away, what part will be left? If two ninths are taken away, what part will be left? If four ninths are taken away, what part will be left? If six ninths are taken away, what part will be left?

Divide the line into three equal parts. What is each part called? One third is equal to how many ninths? Two thirds equals how many ninths?

49. Make a line ten inches long. How much longer is it than the one-inch line? than the five-inch line? than the seven-inch line? than the four-inch line? than the six-inch line? than the nine-inch line? than the three-inch line? than the eight-inch line? than the two-inch line?

How many times will it contain the one-inch line? the two-inch line? the five-inch line? the seven-inch line? the eight-inch line? the three-inch line? the six-inch line? the four-inch line? the nine-inch line?

Divide it into ten equal parts. Each part is called *one tenth*.

If one tenth of the line is taken away, what part of the line will be left? If four tenths are taken away, what part will be left? If seven tenths are taken away, what part will be left? If three tenths are taken away, what part will be left? If five tenths are taken away, what part will be left? If nine tenths are taken away, what part will be left? If six tenths are taken away, what part will be left? If four tenths are taken away, what part will be left? If eight tenths are taken away, what part will be left?

Divide it into two equal parts. What is each part called? One half equals how many tenths?

Divide it into five equal parts. What is each part called? What is one fifth of ten inches? four fifths of ten inches? two fifths of ten inches? three fifths of ten inches? One fifth equals how many tenths?
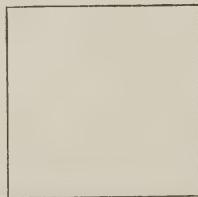
50. How long is each side of this square? A square whose sides are each one inch long is called a **square inch.**

Make (draw, cut, or lay sticks or tablets) an oblong two inches long and one inch wide. Divide the long sides into two equal parts and connect the points. How many square inches in the oblong? What part of the oblong is one square inch? The oblong is how many times as large as the square?

Make an oblong four inches long and one inch wide. Divide it into square inches. How many square inches in the oblong? What part of the oblong is one square inch? The oblong is how many times as large as one square inch? as two square inches? Two square inches are what part of the oblong? Three square inches are what part of the oblong?

Make a square whose sides shall each be two inches long. Divide it into square inches. How many rows of square inches in the square? How many square inches in each row? How many are two times two square inches? How many square inches in the square? How many square inches in three fourths of the square? in one half of it?

Make an oblong five inches long and one inch wide. Divide it into square inches. How many square inches in the oblong? One square inch is what part of the oblong? four square inches? two square inches? three square inches?

Make an oblong three inches long and two inches wide. Divide it into square inches. How many square inches in one row across the oblong? How many rows are there across the oblong? How many are two times three square inches? Into how many parts does the line across the oblong divide it? What is each part called? What is one half of six square inches? How many times are three square inches contained in six square inches? Into how many parts do the lines up and down the

oblong divide it? What is each part called? How many square inches in each third of the oblong? How many are three times two square inches? How many times are two square inches contained in six square inches? What is one third of six? two thirds of six? What part of six inches is two inches? three inches? four inches?

WRITTEN EXERCISE.

$2 \times 2 = ?$	$2 \times 3 = ?$	$\frac{1}{2}$ of $6 = ?$	$\frac{3}{4}$ of $4 = ?$
$3 \times 2 = ?$	$\frac{1}{2}$ of $4 = ?$	$\frac{1}{3}$ of $6 = ?$	$\frac{2}{3}$ of $6 = ?$

Make squares or oblongs containing one square inch; two square inches; three square inches; four square inches; five square inches; six square inches.

51. Make an oblong seven inches long and one inch wide. Divide it into square inches. One square inch is what part of it? How many times as large as a square inch is it?

Make an oblong four inches long and two inches wide. Divide it into square inches. How many square inches are in one row across the oblong? How many such rows? How many are two times four square inches? How many times are four square inches contained in eight square inches? What is one half of eight square inches?

How many square inches are in each row up and down the oblong? How many such rows are there? How many are four times two square inches? How many times are two square inches contained in eight square inches? What is one fourth of eight square inches? three fourths of eight square inches?

Make a square whose sides are each three inches long. Divide it into square inches. How many square inches are in each row?

How many such rows are there? How many are three times three square inches? How many times are three square inches contained in nine square inches? What is one third of nine square inches? What are two thirds of nine square inches? One square inch is what part of nine square inches? Three square inches are what part of nine square inches? Six square inches are what part of nine square inches?

Make an oblong five inches long and two inches wide. Divide it into square inches. How many square inches are in each long row? How many long rows are there? How many are two times five square inches? How many times are five square inches contained in ten square inches? What is one half of ten square inches? How many square inches are in each short row? How many short rows are there? What are five times two square inches? How many times are two square inches contained in ten square inches? Two square inches is what part of ten square inches? What are two fifths of ten square inches? What are three fifths of ten square inches? What are four fifths of ten square inches?

WRITTEN EXERCISE.

$8 \times 1 = ?$	$7 \times 1 = ?$	$10 \div 2 = ?$	$\frac{1}{2}$ of $10 = ?$
$2 \times 4 = ?$	$9 \times 1 = ?$	$\frac{1}{2}$ of $8 = ?$	$\frac{3}{4}$ of $8 = ?$
$3 \times 3 = ?$	$8 \div 2 = ?$	$\frac{1}{3}$ of $9 = ?$	$\frac{2}{3}$ of $9 = ?$
$2 \times 5 = ?$	$9 \div 3 = ?$	$\frac{1}{2}$ of $10 = ?$	$\frac{2}{5}$ of $10 = ?$
$4 \times 2 = ?$	$10 \div 5 = ?$	$\frac{1}{4}$ of $8 = ?$	$\frac{4}{5}$ of $10 = ?$
$5 \times 2 = ?$	$8 \div 4 = ?$	$\frac{2}{5}$ of $10 = ?$	

Make oblongs and squares containing seven square inches; eight square inches; nine square inches; ten square inches.

SECTION IX.

ELEVEN.
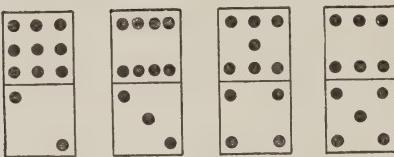
52. *a.* How many are nine and two?

b. How many are eight and three?

c. How many are seven and four?

d. How many are six and five?

e. How many are two and nine?

f. How many are three and eight?

g. How many are four and seven?

h. How many are five and six?

i. Nine and how many are eleven?

j. Eight and how many are eleven?

k. Seven and how many are eleven?

l. Six and how many are eleven?

m. Two and how many are eleven?

n. Three and how many are eleven?

o. Four and how many are eleven?

p. Five and how many are eleven?

q. Beginning with the tablet at the left, add the dots in each one, beginning at the top.

r. Beginning with the tablet at the right, add the dots in each one, beginning at the top.

s. Beginning at the left, add the dots in each tablet, beginning at the bottom.

t. Beginning at the right, add the dots in each tablet, beginning at the bottom.

u. Beginning at the left, take away the upper groups. (Recite " Eleven less nine is two.")

v. Beginning at the right, take away the upper groups.

w. Beginning at the left, take away the lower groups.

x. Beginning at the right, take away the lower groups.

(Close the books.)

Can you think of the groups in the same order?

Begin at the left at the top and try to tell them.

What is the one at the right? at the left? next to the right? next to the left?

Make a number story about nine and two; about eight and three; about six and five; about seven and four.

Make a number story about eleven, taking away three; taking away seven; taking away nine; taking away six; taking away eight; taking away four; taking away two; taking away five.

53. *a.* A man has eight sheep in one field and three in another; how many has he in both fields?

b. There are seven horses in the barn and four in a lot; how many are in both places?

c. Jennie had eleven cents and spent three; how many had she left?

d. George had eleven cows and sold seven; how many had he left?

e. Henry had eleven apples and gave away five; how many had he left?

f. Willie has nine marbles and Jimmie has two; how many have they both?

g. Lucy has eleven cents and Carrie has five; how many more has Lucy than Carrie?

h. Abby has six dolls, and Hattie has five; how many have they both?

i. Mary is eleven years old and Jennie is six years old; how much older is Mary than Jennie?

j. Mary is eleven years old and Susie is eight years old; how much older is Mary than Susie?

k. Carrie is nine years old; in how many years will she be eleven?

l. Henry has eight dollars; he wants to buy a chair which costs eleven dollars. How much more money does he need?

m. George walked eleven miles and Henry walked seven miles; how much farther did George walk than Henry?

n. A man has eleven hours' work to do; how many hours must he still work after working nine hours?

o. John had eleven marbles and lost two; how many had he left?

p. There are four girls and seven boys in a class; how many children are in the class?

q. How much longer is an eleven-inch stick than a nine-inch stick? than a two-inch stick?

r. How much longer is an eleven-inch stick than an eight-inch stick? than a three-inch stick?

s. How much longer is an eleven-inch stick than a six-inch stick? than a five-inch stick?

t. How much longer is an eleven-inch stick than a seven-inch stick? than a four-inch stick?

u. $6 + ? = 11$ $8 + ? = 11$ $4 + ? = 11$ $9 + ? = 11$
   $3 + ? = 11$ $5 + ? = 11$ $7 + ? = 11$

v. $11 - 3 = ?$ $11 - 9 = ?$ $11 - 7 = ?$ $11 - 2 = ?$
   $11 - 5 = ?$ $11 - 4 = ?$ $11 - 6 = ?$

54. Add:

a	*b*	*c*	*d*	*e*	*f*	*g*
4	5	3	2	5	4	2
3	2	2	3	3	3	7
3	4	5	4	3	4	1

h	*i*	*j*	*k*	*l*	*m*	*n*
3	5	1	1	2	1	2
6	1	6	3	4	2	3
2	5	4	7	5	8	5

o	*p*	*q*	*r*	*s*	*t*	*u*
1	2	2	1	2	1	2
3	3	5	7	1	5	4
5	6	4	2	8	5	4

v	*w*	*x*	*y*	*z*
3	4	2	1	6
1	6	2	9	3
6	1	6	1	2

Subtract at sight:

11	11	11	11	11	11	11	11	11
4	1	8	2	6	9	7	3	5

55. Add the dots on these tablets, beginning at the left.

How many are two twos ? three twos ? five twos ? four twos ?

Five twos and one more ?

Eight is how many twos ?

Four ? Six ? Ten ? Eleven ?

a. At two cents apiece, how many tops can be bought for eleven cents ?

b. How many quarts of milk are eleven pints ?

c. How many two-inch sticks can be cut from a stick eleven inches long ?

d. How many chairs at two dollars apiece can be bought for eleven dollars ?

e. Eight pints are how many quarts ?

f. How many tops at two cents apiece can be bought for eight cents ? for nine ? for ten ? for eleven ?

g. How many twos in eleven ?

h. Eleven divided by two is how many ?

i. Six divided by two ?

j. Eight divided by two ?

k. Seven divided by two ?

l. Five divided by two ?

m. Nine divided by two?

n. Four divided by two?

o. Ten divided by two?

p. Three divided by two?

WRITTEN EXERCISE.

a. In seven pints there —— qts. and —— pt.

b. For eleven dollars I can buy —— two-dollar chairs and have —— left.

c. In ten pints there are —— qts.

d. For nine cents I can buy —— two-cent tops and have —— left.

e. Write from *h* to *p* in lesson above in figures.

56. Add these dots, beginning at the left.

How many are two threes? three threes? three threes and two more? Eleven is how many threes? Nine? Six?

How many are two threes and one more? Two threes and two more? Three and one? Three and two? Four is how many threes? Seven? Five? Eight?

Draw a line one foot long. Draw a line three feet long. A line three feet long is one yard long. Draw a line two feet long. Draw one four feet long. How many yards long is it? Two yards are how many feet? Two yards and two feet are how many feet? Three yards are how many feet? Three yards and two feet are how many feet?

a. At three cents apiece, how many slates can be bought for eleven cents?

b. At three dollars each, how many chairs can be bought for eleven dollars?

c. How many three-inch sticks can be cut from a stick eleven inches long?

d. How many yard sticks can be cut from a stick eleven feet long?

e. How many triangles can you lay with six sticks?

f. How many hours would it take to walk nine miles if you walk three miles an hour?

g. How many threes in eleven?

h. Eleven divided by three is how many?

i. Nine divided by three?

j. Seven divided by three?

k. Ten divided by three?

l. Five divided by three?

m. Eight divided by three?

n. Six divided by three?

o. Four divided by three?

WRITTEN EXERCISE.

a. In six feet there are —— yards.

b. In eleven feet there are —— yards and —— feet.

c. Three triangles have —— sides.

d. For eleven cents I can buy —— three cent tops and have —— cents left.

e. For eleven dollars I can buy —— three-dollar chairs and have —— dollars left.

f. From an eleven-inch stick I can cut —— three-inch sticks and have one —— inch stick left.

g. Write from *h* to *o* in this lesson in figures.

57. Add these dots beginning at the left. How many are two fours? Two fours and three more?

Add these dots, beginning at the left. How many are two fives and one more? How many fours are there in eleven? How many fives?

a. At four cents each, how many plates can you buy for eleven cents?

b. How many gallons are eleven quarts?

c. At five dollars each, how many tables can you buy for eleven dollars?

d. How many bushels are eleven pecks?

e. George bought two tops for four cents each and a book for three cents; what did they all cost?

f. A man bought two chairs for five dollars each and a stand for one dollar; what did they all cost?

g. Eleven divided by four is how many ?

h. Eleven divided by five ?

i. Nine divided by four ?

j. Seven divided by four ?

k. Ten divided by four ?

l. Six divided by four ?

m. Eight divided by four ?

n. Five divided by four ?

ORAL AND WRITTEN EXERCISE.

a. George bought two pads for five cents each and a pencil for one cent.   He spent —— cents.

b. Two bushels and three pecks are —— pecks.

c. For eleven dollars I can buy —— four-dollar chairs and have —— dollars left

d. For eleven cents I can buy —— five-cent slates and have —— left.

e. Write from *h* to *n* in this lesson in figures.

Find out these for yourselves and make number stories to fit them :

$11 \div 6 = ?$ $11 \div 7 = ?$ $11 \div 8 = ?$ $11 \div 9 = ?$ $11 \div 10 = ?$

SECTION X.

TWELVE.
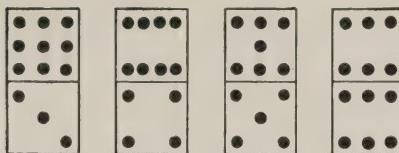
58. *a.* How many are nine and three?

b. How many are eight and four?

c. How many are seven and five?

d. How many are six and six?

e. How many are three and nine?

f. How many are four and eight?

g. How many are five and seven?

h. Nine and how many are twelve?

i. Eight and how many are twelve?

j. Seven and how many are twelve?

k. Six and how many are twelve?

l. Three and how many are twelve?

m. Four and how many are twelve?

n. Five and how many are twelve?

o. Beginning with the tablet at the left, add the dots in each one, beginning at the top.

p. Beginning with the tablet at the right, add the dots, beginning at the top.

q. Beginning with the tablet at the left, add the dots, beginning at the bottom.

7

r. Beginning with the tablet at the right, add the dots, beginning at the bottom.

s. Beginning with the tablet at the left, take away the upper groups.

t. Beginning at the right, take away the lower groups.

u. Beginning at the right, take away the upper groups.

v. Beginning at the left, take away the lower groups.

<div align="center">(Close the books.)</div>

Think of the groups in the order in which they are given in the book.

What is the tablet at the left? at the right? next to the left? next to the right?

Make a number story about nine and three; about seven and five; about six and six; about eight and four.

Make a number story about twelve, taking away six; taking away eight; taking away three; taking away five; taking away seven; taking away four; taking away nine.

59. *a.* Jessie has nine roses and three pinks; how many flowers has she?

b. There are seven boys and five girls in a class; how many children are in the class?

c. George had twelve marbles and lost four of them; how many had he left?

d. A man had twelve sheep and sold six of them; how many had he left?

e. John is twelve years old and Mary is eight years old; how much older is John than Mary?

f. Henry is nine years old; in how many years will he be twelve?

g. Susie wrote twelve words and Lucy wrote seven; how many more words did Susie write than Lucy?

h. Mary read eight books in one year, and Carrie read four books; how many books did they both read?

i. Carrie wrote six words in the morning and six words in the afternoon; how many words did she write in all?

j. John had twelve cents and spent five cents for a slate; how much had he left?

k. James had seven peaches and a man gave him five more; how many peaches had he then?

l. There are nine trees in one yard and three trees in the next yard; how many trees are there in both yards?

m. George earned eight cents and Henry earned four cents; how many cents did they both earn?

n. Willie is six years old; in how many years will he be twelve?

o. How much longer is a twelve-inch line than a three-inch line? than a nine-inch line?

p. How much longer is a twelve-inch line than a seven-inch line? than a five-inch line?

q. How much longer is a twelve-inch line than an eight-inch line? than a four-inch line?

r. How much longer is a twelve-inch line than a six-inch line?

s $7 + ? = 12$	$9 + ? = 12$	$6 + ? = 12$	$8 + ? = 12$
$3 + ? = 12$	$4 + ? = 12$	$5 + ? = 12$	
t. $12 - 4 = ?$	$12 - 6 = ?$	$12 - 3 = ?$	$12 - 7 = ?$
$12 - 9 = ?$	$12 - 5 = ?$	$12 - 8 = ?$	

60. Add:

a	b	c	d	e	f	g
3	7	2	1	3	3	5
4	3	1	2	4	5	3
4	2	9	8	5	3	4

h	i	j	k	l	m	n
6	4	4	6	3	4	8
4	2	2	2	1	3	2
1	6	5	4	6	3	2

o	p	q	r	s	t	u
2	1	3	2	5	2	6
4	3	3	7	1	5	1
6	7	6	2	6	5	5

v	w	x	y	z
6	5	3	3	7
2	5	1	7	1
3	2	8	1	3

Subtract at sight:

12	12	12	12	12	12
3	8	1	5	2	4

12	12	12	12	12
9	7	6	10	11

WRITTEN EXERCISE.

8	7	9	6	4	5	3	7
3	5	2	6	8	6	9	4

a. Write table of additions, beginning with the upper number.

b. Write table of additions, beginning with the lower number.

c. Write table of subtractions, taking away the upper number.

d. Write table of subtractions, taking away the lower number.

e. Write a number story about eight and four.

f. Write a number story about six and five.

g. Write a number story about eleven less three.

h. Write a number story about twelve less seven.

61. Add the dots on these tablets, beginning at the left.

How many are two twos? four twos? three twos? five twos? six twos?

Twelve is how many twos? Eight? Six? Four? Ten? Nine? Three? Seven? Five?

a. How many chairs at two dollars apiece can be bought for twelve dollars?

b. Twelve pints are how many quarts?

c. How many two-inch sticks can be cut from a stick twelve inches long?

d. How many tops at two cents apiece can be bought for twelve cents? for ten cents?

e. How many twos in twelve?

f. Twelve divided by two is how many?

g. Three divided by two is how many?

h. Ten divided by two is how many?

i. Four divided by two is how many?

j. Nine divided by two is how many?

k. Five divided by two is how many?

l. Seven divided by two is how many?

m. Eight divided by two is how many?

n. Six divided by two is how many?

o. Eleven divided by two is how many?

With books closed, add by twos to twelve.

WRITTEN EXERCISE.

a. Twelve pints are —— quarts.

b. For twelve cents I can buy —— two-cent tops.

c. For twelve dollars I can buy —— two-dollar chairs.

d. Write from *f* to *o* in this lesson in figures.

62. Add these dots, beginning at the **left.** How many threes are there? How many are four threes? two threes? three threes? How many threes in twelve? in nine? in six?

a. At three cents each, what is the cost of four tops?

b. At three dollars each, what is the cost of four chairs?

c. At three cents apiece, how many slates can be bought for twelve cents?

d. At three dollars each, how many chairs can be bought for twelve dollars?

e. How many triangles can be laid with twelve sticks?

f. How many three-inch sticks can be cut from a stick twelve inches long?

g. How long is a foot?

h. How long is a yard?

i. How many yard sticks can be cut from a stick twelve feet long?

j. Twelve divided by three is how many?

k. Nine divided by three is how many?

l. Six divided by three is how many?

m. Eight divided by three is how many?

n. Ten divided by three is how many?

o. Seven divided by three is how many?

p. Eleven divided by three is how many?

q. Five divided by three is how many?

r. With books closed, add by threes to twelve.

WRITTEN EXERCISE.

a. For twelve dollars I can buy —— three-dollar hats.

b. For nine cents I can buy —— three-cent tops.

c. For eleven cents I can buy —— three-cent tops and have —— left.

d. From a twelve-inch stick I can cut —— three-inch sticks.

e. From a twelve-foot stick —— yard sticks can be cut.

f. Write from *j* to *q* in this lesson in figures.
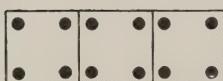
63. *a.* How many are two fours? three fours?

b. How many are two fives? two fives and two more?

c. Eight is how many fours?

d. Twelve is how many fours?

e. Ten is how many fives?

f. Eleven is how many fives?

g. Twelve is how many fives?

h. How many bananas at four cents each can be bought for eight cents? for twelve cents?

i. How many pecks in two bushels? in three bushels?

j. How many quarts in two gallons? in three gallons?

k. Eight pecks are how many bushels?

l. Twelve pecks are how many bushels?

m. Twelve quarts are how many gallons?

n. Eight quarts are how many gallons?

o. How many tables for five dollars each can be bought for twelve dollars?

p. How many books at five cents apiece can be bought for twelve cents?

q. Twelve divided by four is how many?

r. Twelve divided by five is how many?

WRITTEN EXERCISE.

a. Eight quarts are —— gallons.

b. Twelve quarts are —— gallons.

c. Eight pecks are —— bushels.

d. Twelve pecks are —— bushels.

e.　　$2 \times 4 = ?$　　　$3 \times 4 = ?$　　　$8 \div 4 = ?$　　　$12 \div 4 = ?$

　　　$10 \div 5 = ?$　　$12 \div 5 = ?$

Find these out for yourself and make number stories for them :

$12 \div 6 = ?$　　　$12 \div 7 = ?$　　　$12 \div 8 = ?$　　　$12 \div 9 = ?$

$12 \div 10 = ?$

WRITTEN EXERCISE.

a. For twelve dollars I can buy —— six-dollar chairs.

b. How many seven-inch sticks can I cut from a twelve-inch stick ?　What will be left ?

c. How many eight-cent slates can you buy for twelve cents ? What will be left ?

d. How many nine-foot sticks can be cut from a twelve-foot stick ?　What will be left ?

e. How many ten-cent pictures can you buy for twelve cents ? What will be left ?

$12 \div 3 = ?$	$12 \div 4 = ?$	$12 \div 9 = ?$
$12 \div 2 = ?$	$12 \div 7 = ?$	$12 \div 5 = ?$
$12 \div 6 = ?$	$12 \div 10 = ?$	$12 \div 10 = ?$

64. Draw a line twelve inches long.　Divide it into two equal parts.

a. What is the name of each part ?

b. How many inches in each part ?

c. How many inches in half a foot ?

d. What is one half of twelve? Divide each half of the line into two equal parts.

e. Into how many parts is the line divided?

f. What is the name of each part?

g. What is $\frac{1}{2}$ of $\frac{1}{2}$?

h. How many inches are in each part?

i. How many inches are in $\frac{1}{4}$ of a foot?

j. What is $\frac{1}{4}$ of 12?

k. One half of twelve equals how many fourths of twelve?

l. What is $\frac{2}{4}$ of 12?

m. What is $\frac{3}{4}$ of 12?

n. Draw another line twelve inches long. Divide it into three equal parts. What is each part called?

o. How many inches are in each part?

p. How many inches are in $\frac{1}{3}$ of a foot?

q. How many inches are in $\frac{2}{3}$ of a foot?

r. What is $\frac{1}{3}$ of 12? $\frac{2}{3}$ of 12?

s. Divide each third into two equal parts.

t. Into how many parts is the line divided?

u. What is the name of each part?

v. What is $\frac{1}{2}$ of $\frac{1}{3}$?

w. How many inches are in $\frac{1}{6}$ of a foot?

x. What is $\frac{1}{6}$ of 12?

y. $\frac{1}{3}$ of a foot is equal to how many sixths of a foot?

z. $\frac{1}{2}$ of a foot is equal to how many sixths of a foot?

ORAL AND WRITTEN EXERCISE.

$\frac{1}{2}$ of 12 = ?	$\frac{3}{4}$ of 12 = ?	$\frac{5}{6}$ of 12 = ?
$\frac{1}{4}$ of 12 = ?	$\frac{2}{3}$ of 12 = ?	$\frac{2}{6}$ of 12 = ?
$\frac{1}{3}$ of 12 = ?	$\frac{4}{6}$ of 12 = ?	$\frac{3}{6}$ of 12 = ?
$\frac{1}{6}$ of 12 = ?	$\frac{2}{4}$ of 12 = ?	$\frac{1}{2}$ of $\frac{1}{2}$ = ?
$\frac{1}{2} = \frac{}{4}$	$\frac{1}{2} = \frac{}{6}$	$\frac{1}{2}$ of $\frac{1}{3}$ = ?

65. *a.* Carrie had 12 cents and spent $\frac{1}{3}$ of them; how many did she spend?

b. How many did she have left?

c. Lucy had 12 apples and gave away $\frac{1}{4}$ of them; how many did she give away?

d. How many did she have left?

e. Henry had 12 marbles and lost $\frac{1}{6}$ of them; how many did he lose?

f. How many did he have left?

g. John had 12 papers and sold $\frac{1}{2}$ of them; how many did he sell?

h. How many did he have left?

i. George had 12 cents and spent $\frac{2}{3}$ of them; how many cents did he spend?

j. How many did he have left?

k. Jennie had 12 yards of cloth; she used $\frac{3}{4}$ of it for a dress and $\frac{1}{4}$ of it for a coat. How many yards did the dress take?

l. How many yards did the coat take?

m. Twelve is one dozen. How many eggs in half a dozen?

WRITTEN EXERCISE.

Draw pictures of the problems in this lesson.

SECTION XI.

THIRTEEN.
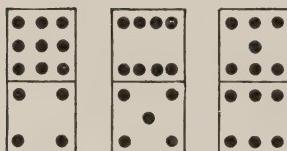
66. *a.* How many are nine and four?

b. How many are eight and five?

c. How many are seven and six?

d. How many are four and nine?

e. How many are five and eight?

f. How many are six and seven?

g. Nine and how many are thirteen?

h. Eight and how many are thirteen?

i. Seven and how many are thirteen?

j. Four and how many are thirteen?

k. Five and how many are thirteen?

l. Six and how many are thirteen?

m. Beginning with the tablet at the left, add the dots in each one, beginning at the top.

n. Beginning with the tablet at the right, add the dots in each one, beginning at the top.

o. Beginning at the left, add the dots in each tablet, beginning at the bottom.

p. Beginning at the right, add the dots in each tablet, beginning at the bottom.

u. Beginning at the left, take away the upper groups.

Recite " Thirteen less nine are four."

v. Beginning at the right, take away the upper groups.

w. Beginning at the left, take away the lower groups.

x. Beginning at the right, take away the lower groups.

<div align="center">(Close the books.)</div>

Think of these groups in that same order. What is the one at the left? the right? in the middle?

Make a number story about the left-hand one, adding the numbers.

Make a number story about the middle one, taking away the upper number.

Make a number story about the right-hand one, taking away the lower number.

What other numbers make thirteen besides these?

67. *a.* George had eight cents and found five cents; how much money had he then?

b. Carrie had nine books and bought four; how many had she?

c. James walked seven miles in the morning and six miles in the afternoon; how many miles did he walk?

d. A man has six cows and seven sheep; how many animals has he?

e. Lucy has five pinks and eight roses; how many flowers has she?

f. George has four marbles and Henry has nine; how many have they both?

g. Jessie has nine books; how many must she get to make thirteen?

h. Carrie has seven dolls; Lucy has enough to make thirteen. How many has Lucy?

i. John is eight years old; in how many years will he be thirteen?

j. George is ten years old; in how many years will he be thirteen?

k. Henry has thirteen marbles and John has seven; how many more marbles has Henry than John?

l. Joseph walked thirteen miles and Frank walked nine miles; how much farther did Joseph walk than Frank?

m. Walter has eight dollars; he wants to buy a table which costs thirteen dollars; how much more money does he need to buy the table?

n. A man had thirteen hours' work to do; he did seven hours' work one day; how many hours must he work the next day?

o. How much longer is a thirteen-inch stick than a nine-inch stick? than a four-inch stick?

p. How much longer is a thirteen-inch stick than an eight-inch stick? than a five-inch stick?

q. How much longer is a thirteen-inch stick than a seven-inch stick? than a five-inch stick?

r.	$9 + ? = 13$		*s.*	$13 - 4 = ?$
	$5 + ? = 13$			$13 - 8 = ?$
	$7 + ? = 13$			$13 - 5 = ?$
	$8 + ? = 13$			$13 - 7 = ?$
	$4 + ? = 13$			$13 - 9 = ?$
	$6 + ? = 13$			$13 - 6 = ?$

t. Add at sight:

10	12	11	10	11	10
1	1	1	2	2	3

u. Subtract at sight:

11	12	13	13	12	13
1	1	2	11	2	10

13	13	13	12	11	12
1	12	3	10	10	11

68. Add:

a	*b*	*c*	*d*	*e*	*f*	*g*
4	3	2	3	2	6	7
3	4	3	2	5	4	1
5	6	7	7	6	3	5

h	*i*	*j*	*k*	*l*	*m*	*n*
4	1	4	5	5	6	3
4	5	4	6	5	2	5
4	7	5	2	2	4	3

o	p	q	r	s	t	u
5	8	4	3	8	2	1
3	3	6	6	4	4	3
3	2	1	3	1	7	9

v	w	x	y	z
4	2	3	1	2
7	1	3	4	5
2	8	7	6	5

Subtract at sight:

13	13	13	13	13	13
1	6	3	8	2	9

13	13	13	13	13	13
5	7	2	10	12	11

69. Add these dots, beginning at the left.

How many are two twos? four twos? three twos? six twos? five twos?

Ten is how many twos? Eight? Four? Six? Twelve? Seven? Three? Five? Eleven? Thirteen?

a. How many two-cent tops can you buy for thirteen cents?

b. How many two-inch sticks can be cut from a stick thirteen inches long?

c. How many quart dishes can you fill with thirteen pints of milk ?

d. How many two-dollar books can you buy with thirteen dollars ?

e. Thirteen divided by two is how many ?

f. Six divided by two is how many ?

g. Eight divided by two is how many ?

h. Eleven divided by two is how many ?

i. Seven divided by two is how many ?

j. Four divided by two is how many ?

k. Nine divided by two is how many ?

l. Five divided by two is how many ?

m. Twelve divided by two is how many ?

n. Three divided by two is how many ?

o. Ten divided by two is how many ?

WRITTEN EXERCISE.

a. For thirteen cents I can buy —— two-cent tops and have —— left.

b. Write from *e* to *o* in this lesson in figures.

70. Add these dots, beginning at the left.

How many are two threes ? four threes ? three threes ?

8

Six is how many threes?   Twelve?   Nine?   Thirteen?
Eleven? Seven? Ten?   Eight?

a. How long is a foot?

b. How long is a yard?

c. How many three-inch sticks can be cut from a stick thir-
teen inches long?

d. How many yard sticks can be cut from a stick thirteen
feet long?

e. How many feet long is a piece of cloth three yards long?

f. How many feet long is a pole four yards long?

g. How many yards long is a rope thirteen feet long?

h. Ten feet are how many yards?

i. How many three-cent tops can you buy for eight cents?

j. How many three-dollar chairs can you buy for eleven
dollars?

k. Twelve divided by three is how many?

l. Nine divided by three is how many?

m. Seven divided by three is how many?

n. Ten divided by three is how many?

o. Six divided by three is how many?

p. Eight divided by three is how many?

q. Eleven divided by three is how many?

r. Thirteen divided by three is how many?

s. Five divided by three is how many?

WRITTEN EXERCISE.

a. Thirteen feet are —— yards and ——.

b. For thirteen cents I can buy —— three-cent oranges and have —— left.

c. Write from *k* to *s* in this lesson in figures.

71. *a.* How many are two fours? three fours? three fours and one more?

b. How many are two fives? two fives and three more?

c. George bought three books for four cents each and a pencil for one cent; what did he pay for all?

d. Henry bought two bananas for five cents each and a glass of milk for three cents; what did he pay for all?

e. Two bushels are how many pecks?

f. Three bushels are how many pecks?

g. Two bushels and one peck are how many pecks?

h. Three bushels and one peck are how many pecks?

i. Eight pecks are how many bushels?

j. Twelve pecks are how many bushels?

k. Thirteen pecks are how many bushels?

l. Ten pecks are how many bushels?

m. How many quarts are there in one gallon?

n. Seven quarts are how many gallons?

o. Eleven quarts are how many gallons?

p. Thirteen quarts are how many gallons?

q. How many slates at five cents apiece can be bought for thirteen cents?

r. How many hats at five dollars each can be bought for thirteen dollars?

s. How many tops at four cents each can be bought for thirteen cents?

t. How many fours in thirteen?

u. How many fives in thirteen?

WRITTEN EXERCISE.

$2 \times 4 = ?$	$11 \div 4 = ?$	$6 \div 5 = ?$
$3 \times 4 = ?$	$8 \div 4 = ?$	$10 \div 5 = ?$
$9 \div 4 = ?$	$6 \div 4 = ?$	$13 \div 5 = ?$
$12 \div 4 = ?$	$2 \times 5 = ?$	$11 \div 5 = ?$
$7 \div 4 = ?$	$9 \div 5 = ?$	$12 \div 5 = ?$
$10 \div 4 = ?$	$7 \div 5 = ?$	$5 \div 4 = ?$
$13 \div 4 = ?$	$8 \div 5 = ?$	

72. Find these out for yourselves, and make number stories for them:

$13 \div 6 = ?$　$13 \div 7 = ?$　$13 \div 9 = ?$　$13 \div 8 = ?$　$13 \div 10 = ?$

WRITTEN EXERCISE.

a. For thirteen cents I can buy —— six-cent slates and have —— left.

b. For thirteen cents I can buy —— seven-cent balls and have —— left.

c. How many eight-inch sticks can be cut from a thirteen-inch stick? What will be left?

d. How many nine-foot sticks can be cut from a thirteen-foot stick? What will be left?

e. How many ten-cent pictures can you buy for thirteen cents? What will be left?

|		
$13 \div 3 = ?$	$13 \div 8 = ?$	$13 \div 2 = ?$
$13 \div 7 = ?$	$13 \div 10 = ?$	$13 \div 5 = ?$
$13 \div 9 = ?$	$13 \div 4 = ?$	$13 \div 6 = ?$

SECTION XII.

FOURTEEN.
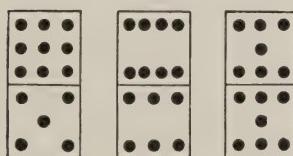
73. *a.* Nine and five are how many?

b. Eight and six are how many?

c. Seven and seven are how many?

d. Five and nine are how many?

e. Six and eight are how many ?

f. Take nine from fourteen ; how many are left ?

g. Take six from fourteen ; how many are left ?

h. Take eight from fourteen ; how many are left ?

i. Take five from fourteen ; how many are left ?

j. Take seven from fourteen ; how many are left ?

k. Five and how many are fourteen ?

l. Eight and how many are fourteen ?

m. Six and how many are fourteen ?

n. Nine and how many are fourteen ?

o. Seven and how many are fourteen ?

p. What is one half of fourteen ?

q. Beginning at the left, add the dots in each tablet, beginning with the upper number.

r. Beginning at the left, add the dots in each tablet, beginning with the lower number.

s. Beginning at the left, take away the upper number.

t. Beginning at the right, take away the lower number.

u. Make a number story about the left-hand tablet, adding the numbers.

v. Make a number story about the middle one, taking away the upper number.

w. Make a number story about the right-hand one, adding the numbers.

x. Ten and how many are fourteen ? Thirteen and how many ?

y. Eleven and how many are fourteen? Twelve and how many?

z. Fourteen less ten are how many? less twelve? less thirteen? less eleven?

74. *a.* Walter has eight books and his sister has six books; how many books have they both?

b. Ned had fourteen marbles and lost five marbles; how many marbles had he left?

c. Jessie has nine roses and five pinks; how many flowers has she?

d. Lucy is fourteen years old and Mary is eight years old; how much older is Lucy than Mary?

e. Susie is six years old; in how many years will she be fourteen?

f. George started out to walk fourteen miles; after he has walked seven miles, how many more miles has he to walk?

g. Henry had eight cents and earned six cents; how much money had he then?

h. Louis is five years old and Charlie is fourteen years old; how much older is Charlie than Louis?

i. James is nine years old; in how many years will he be fourteen?

j. George had fourteen dollars and spent six dollars; how much money had he left?

k. Willie has seven cents; he wants to buy a book that costs fourteen cents; how much more money does he need?

l. How much longer is a fourteen-inch stick than a nine-inch stick ?

m. How much longer is a fourteen-inch stick than a six-inch stick ?

n. How much longer is a fourteen-inch stick than a five-inch stick ?

o. How much longer is a fourteen-inch stick than a seven-inch stick ?

p. How much longer is a fourteen-inch stick than an eight-inch stick ?

q. $5 + ? = 14$	*r.* $14 - 6 = ?$
$8 + ? = 14$	$14 - 9 = ?$
$9 + ? = 14$	$14 - 7 = ?$
$6 + ? = 14$	$14 - 5 = ?$
$7 + ? = 14$	$14 - 8 = ?$
$\frac{1}{2}$ of $14 = ?$	

t. Add at sight :

10	10	12	11	11	10	11	12	10	13
4	1	1	3	1	2	2	2	3	1

u. Subtract at sight :

14	12	13	12	13	14	13	12	13	14
1	10	1	1	11	11	3	2	2	3

13	14	11	14	11	14	12	14	11	13
10	12	1	4	10	10	11	13	2	12

75. Add :

a	b	c	d	e	f	g
1	4	2	5	4	9	3
5	6	7	8	2	4	6
5	2	3	1	7	1	3

h	i	j	k	l	m	n
6	8	5	6	7	5	4
1	2	3	3	4	2	4
6	3	3	5	2	5	6

o	p	q	r	s	t	u
2	3	8	4	9	8	5
5	4	5	3	1	2	1
4	4	1	4	1	2	7

v	w	x	y	z
4	6	7	3	7
1	5	2	2	3
9	1	5	8	1

Subtract :

14	14	14	14	14	14	14
2	8	6	10	1	13	12

14	14	14	14	14	14
5	4	9	7	11	3

76. *a.* Add twos to fourteen.

b. How many twos in fourteen?

c. How many two-cent tops can be bought for fourteen cents?

d. To how many people can you give fourteen oranges if you give two oranges to each person?

e. Add threes to fourteen.

f. Fourteen is how many threes?

g. How many three-cent slates can be bought for fourteen cents?

h. To how many people can you give fourteen apples if you give three to each person? How many apples will you have left?

i. Add fours to fourteen.

j. Fourteen is how many fours?

k. Fourteen pecks are how many bushels?

l. Fourteen quarts are how many gallons?

m. Add fives to fourteen.

n. Fourteen is how many fives?

o. At five cents each, how many blank books can you buy for fourteen cents?

p. Add sixes to fourteen.

q. Fourteen is how many sixes?

r. Add sevens to fourteen.

s. Fourteen is how many sevens?

t. How many days are there in two weeks?

u.

$14 \div 2 = ?$	$7 \times 2 = ?$
$14 \div 3 = ?$	$4 \times 3 = ?$
$14 \div 4 = ?$	$3 \times 4 = ?$
$14 \div 5 = ?$	$2 \times 5 = ?$
$14 \div 6 = ?$	$2 \times 6 = ?$
$14 \div 7 = ?$	$2 \times 7 = ?$

77. Cut a piece of paper or a string fourteen inches long. Mark it in inches.

a. If you cut it into inch pieces, how many pieces would you have?

b. How many two-inch pieces would it cut into?

c. How many three-inch pieces would it cut into?

d. How many four-inch pieces would it cut into?

e. How many five-inch pieces would it cut into?

f. How many six-inch pieces would it cut into?

g. How many seven-inch pieces would it cut into?

h. If you cut off an eight-inch piece, what would be left?

i. Fourteen divided by eight is how many?

j. If you cut off a nine-inch piece, what would be left?

k. Fourteen divided by nine is how many?

l. If you cut off a ten-inch piece, what would be left?

m. Fourteen divided by ten is how many?

n. How many two-foot sticks would a fourteen-foot stick cut into?

o. How many yard sticks would a fourteen-foot stick cut into?

Draw an oblong seven inches long and two inches wide. Divide it into square inches.

p. How many square inches are in each of the long rows?

q. How many long rows are there?

r. How many square inches in the oblong?

s. How many are two times seven?

t. One half of fourteen is how many?

u. How many square inches in each of the short rows?

v. How many short rows are there?

w. If anything is divided into seven equal parts, what is each part called?

x. What is one seventh of fourteen?

y. George had fourteen cents and spent one seventh of it; how much money did he spend?

z. Carrie had fourteen pieces of candy and gave one half of them to her sister; how many did she give her sister?

WRITTEN EXERCISE.

a. A fourteen-inch stick will make —— two-inch sticks.

b. Fourteen quarts of milk will fill —— gallon cans, and leave —— quarts.

c. An oblong seven inches long and two inches wide contains —— square inches.

d. A fourteen-foot stick will make —— yard sticks, and leave a stick —— feet long.

e. Fourteen pecks of apples will fill —— bushel baskets and leave —— pecks.

f. Fourteen cents are equal to —— five-cent pieces and —— cents.

g. For fourteen dollars I can buy —— six-dollar chairs and have —— dollars left.

h.

$4 \times 3 = ?$	$2 \times 6 = ?$	$2 \times 5 = ?$
$7 \times 2 = ?$	$3 \times 4 = ?$	

i.

$14 \div 8 = ?$	$14 \div 9 = ?$	$14 \div 10 = ?$
$14 \div 3 - ?$	$14 \div 5 = ?$	$14 \div 6 = ?$
$14 \div 7 = ?$	$14 \div 2 = ?$	$14 \div 4 = ?$

SECTION XIII.

FIFTEEN.

78. Add at sight:

11	14	12	13	10
4	1	3	2	5

Subtract at sight:

15	15	15	15	15	15	15	15	15	15
1	12	11	3	5	10	4	13	14	2
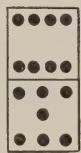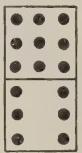
a. How many are ten and five?

b. Nine and how many are fifteen?

c. Six and how many are fifteen?

d. Eight and how many are fifteen?

e. Take six from fifteen; how many are left?

f. Take eight from fifteen; how many are left?

g. Take nine from fifteen; how many are left?

h. Take seven from fifteen; how many are left?

i. Beginning at the left, add the dots in each tablet, beginning with the upper number.

j. Beginning at the left, add the dots in each tablet, beginning with the lower number.

k. Beginning at the left, take away the upper number.

l. Beginning at the right, take away the lower number.

m. Make a number story about the left-hand tablet, adding the numbers.

n. Make a number story about the right-hand tablet, adding the numbers.

o. Make a number story about the left-hand tablet, taking away the upper number.

p. Make a number story about the right-hand tablet, taking away the upper number.

q. Make a number story about the left-hand tablet, taking away the lower number.

r. Make a number story about the right-hand tablet, taking away the lower number.

79. *a*. Carrie has eight books and Sarah has seven; how many books have they both?

b. John had fifteen apples and gave away six; how many apples has he left?

c. George is eight years old; in how many years will he be fifteen?

d. Henry rode nine miles on his bicycle in one hour and six miles the next hour; how many miles did he ride in two hours?

e. Lucy is seven years old and Fannie is fifteen years old; how much older is Fannie than Lucy?

f. Susie had fifteen flowers and gave away nine; how many flowers had she left?

g. There are six boys and nine girls in a class; how many children in the class?

h. There are seven sheep and eight cows in a field; how many animals in the field?

i. How much longer is a fifteen-foot pole than an eight-foot pole?

j. How much longer is a fifteen-foot pole than a six-foot pole?

k. How much longer is a fifteen-foot pole than a nine-foot pole?

l. How much longer is a fifteen-foot pole than a seven-foot pole?

m. $8 + ? = 15$ $15 - 8 = ?$

   $6 + ? = 15$ $15 - 6 = ?$

   $9 + ? = 15$ $15 - 9 = ?$

   $7 + ? = 15$ $15 - 7 = ?$

n. Subtract at sight:

15	15	15	15	15	15	15
3	9	4	11	6	13	2

15	15	15	15	15	15	15
10	7	14	1	12	8	5

80. Add these examples:

a	b	c	d	e	f	g
8	1	7	9	2	5	7
3	2	2	5	1	1	2
1	8	5	1	9	7	2

h	i	j	k	l	m	n
9	6	8	7	5	4	7
1	3	1	4	5	4	4
1	4	2	4	4	6	2

o	p	q	r	s	t	u
6	8	8	8	4	9	6
3	3	2	1	6	4	2
5	3	3	6	3	1	7

v	w	x	y
3	3	4	5
8	7	6	5
1	3	2	5

WRITTEN EXERCISE.

a. George has one marble, Henry has three marbles, and John has eight marbles. They all have —— marbles.

b. John spent eight cents for a book, two cents for a pencil, and one cent for a rubber. They all cost —— cents.

9

c. George walked four miles one day, two miles the next day, and nine miles the next day.   In the three days he walked ——— miles.

d. Henry sold four books one day, three books the next day, and eight books the next day.   In all he sold ——— books.
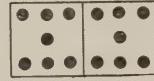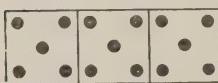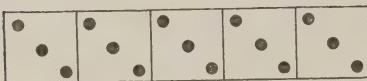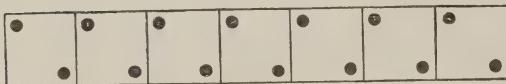
81. *a.* Add twos to fifteen.

b. Fifteen is how many twos?

c. How many two-cent apples can be bought for fifteen cents?

d. How many quart cans can you fill with fifteen pints of milk?

e. Add threes to fifteen.

f. Fifteen is how many threes?

g. How many plates would be needed to hold fifteen apples if three apples were put on each plate?

h. Add fours to fifteen.

i. Fifteen is how many fours?

j. At four cents each, how many bananas can you buy for fifteen cents?

k. Add fives to fifteen.

l. Fifteen is how many fives?

m. If five people can be seated on one bench, how many benches would be needed to seat fifteen people?

n. Add sixes to fifteen.

o. Fifteen is how many sixes?

p. At six cents each, how many boxes can be bought for fifteen cents?

q. Add sevens to fifteen.

r. Fifteen is how many sevens?

s. At seven cents each, how many slates can be bought for fifteen cents?

t. $7 \times 2 = ?$	*u.* $15 \div 2 = ?$
$5 \times 3 = ?$	$15 \div 3 = ?$
$3 \times 4 = ?$	$15 \div 4 = ?$
$3 \times 5 = ?$	$15 \div 5 = ?$
$2 \times 6 = ?$	$15 \div 6 = ?$
$2 \times 7 = ?$	$15 \div 7 = ?$

82. *a.* How many quart cans can be filled with fifteen pints of milk, and what will be left?

b. How many yard sticks can be cut from a fifteen-foot stick?

c. How many bushel baskets can be filled from fifteen pecks of apples? What will be left?

d. How many gallon measures can be filled from fifteen quarts of milk?   What will be left?

e. How many street-car rides can you take for fifteen cents?

f. Carrie has fifteen pinks; to how many girls can she give six pinks each, and how many pinks will she have left?

Cut a piece of paper or string fifteen inches long.   Mark it in inches.

g. If you cut it in inch pieces, how many pieces will you have?

h. How many two-inch pieces will it cut into?

i. How many three-inch pieces will it cut into?

j. How many four-inch pieces will it cut into?

k. How many five-inch pieces will it cut into?

l. How many six-inch pieces will it cut into?

m. How many seven-inch pieces will it cut into?

n. If you cut off an eight-inch piece, what will be left?

o. Fifteen divided by eight is how many?

p. If you cut off a nine-inch piece, what will be left?

q. Fifteen divided by nine is what?

r. If you cut off a ten-inch piece, what will be left?

s. Fifteen divided by ten is how many?

Draw an oblong five inches long and three inches wide. Divide it into square inches.

t. How many square inches in each row of the length?

u. How many such rows are there?

v. How many square inches in the oblong?

w. How many are three times five?

x. What is one third of fifteen?

y. How many are five times three?

z. What is one fifth of fifteen?

WRITTEN EXERCISE.

a. Fifteen quarts of milk will fill —— gallon cans and leave —— quarts.

b. Fifteen pints of milk will fill —— quart cans, and leave ——.

c. Fifteen pecks of potatoes will fill —— bushel baskets and leave —— pecks.

d. An oblong five inches long and three inches wide contains —— square inches.

e. $7 \times 2 = ?$ $2 \times 6 = ?$ $3 \times 5 = ?$

$5 \times 3 = ?$ $3 \times 4 = ?$ $2 \times 7 = ?$

f. $15 \div 3 = ?$ $15 \div 6 = ?$ $15 \div 5 = ?$

$15 \div 8 = ?$ $15 \div 10 = ?$ $15 \div 9 = ?$

$15 \div 2 = ?$ $15 \div 7 = ?$ $15 \div 4 = ?$

g. $\frac{1}{3}$ of $15 = ?$ $\frac{1}{5}$ of $15 = ?$ $\frac{3}{5}$ of $15 = ?$

$\frac{2}{3}$ of $15 = ?$ $\frac{4}{5}$ of $15 = ?$ $\frac{2}{3}$ of $15 = ?$

SECTION XIV.

SIXTEEN.

83. *a.* How many are ten and six?

b. Eleven and how many are sixteen?

c. Twelve and how many are sixteen?

d. Thirteen and how many are sixteen?

e. Fourteen and how many are sixteen?

f. Fifteen and how many are sixteen?
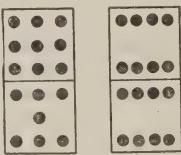
g. Ten and how many are sixteen?

h. Nine and how many are sixteen?

i. Eight and how many are sixteen?

j. Seven and how many are sixteen?

k. Sixteen less seven are how many?

l. Sixteen less nine are how many?

m. Sixteen less eight are how many?

n. What is one half of sixteen?

o. Make a number story about nine and seven.

p. Make a number story about eight and eight.

q. Make a number story about sixteen less seven.

r. Make a number story about sixteen less nine.

s. Make a number story about sixteen less eight.

t. Add at sight:

11	9	13	8	10	14	15	12	7
5	7	3	8	6	2	1	4	9

u. Subtract at sight:

16	16	16	16	16	16	16	16
1	6	9	4	13	15	8	11

16	16	16	16	16	16	16
2	10	7	14	5	12	3

84. *a.* Carrie picked nine roses and seven pinks; how many flowers did she pick?

b. John walked eight miles to see a friend and eight miles home again; how far did he walk?

c. If Henry can ride eight miles an hour on his bicycle, how far can he ride in two hours?

d. If Laura had sixteen pinks and gave the teacher nine of them, how many had she left?

e. If George is nine years old, in how many years will he be sixteen?

f. Henry is sixteen years old and Susie is seven years old; how much older is Henry than Susie?

g. A man has nine sheep and seven cows; how many animals has he?

h. How many are five and three and eight?

i. How many are four and five and seven?

j. George had four cents, his mother gave him four cents and he earned eight cents; how much money had he?

k. Laura has five dolls, Mary has four dolls, and Carrie has seven dolls; how many dolls have they all?

l. A man had sixteen horses and sold eight of them; how many had he left?

m. John earned sixteen cents and spent eight cents; how much had he left?

n. Jennie had sixteen cents; she spent five cents for a book and three cents for a pencil; how much had she left?

o. Henry had sixteen marbles; he gave away five of them and lost four; how many had he left?

p. George had sixteen books; he gave away three and sold four; how many had he left?

q. Think of two numbers that make sixteen. What are they?

r. Think of two numbers not alike that make sixteen. Take away the smaller. What is left?

s. Think of two numbers not alike that make sixteen; take away the larger. What is left?

85. Add:

a	*b*	*c*	*d*	*e*	*f*	*g*
5	6	6	6	7	6	8
4	5	6	5	2	5	3
4	4	4	2	4	3	3

h	*i*	*j*	*k*	*l*	*m*	*n*
6	8	8	2	9	9	4
3	6	1	8	5	1	9
2	1	3	2	2	2	1

o	*p*	*q*	*r*	*s*	*t*	*u*
7	7	9	7	9	5	7
7	2	1	4	1	6	1
1	2	1	3	5	3	4

v	*w*	*x*	*y*	*z*
7	4	5	8	3
7	1	3	2	5
2	8	7	6	5

Subtract:

16	16	16	16	16	16	16	16
4	7	14	1	11	9	6	3

16	16	16	16	16	16	16
2	12	8	15	10	13	5

86. *a.* Add twos to sixteen.

b. Sixteen is how many twos?

c. How many are eight twos? five twos? three twos? six twos? four twos? two twos? seven twos?

d. Twelve is how many twos? Ten? Six? Eight? Four? Fourteen? Sixteen?

e. At two cents each, what is the price of five apples? of six? of eight? of seven? of three? of four? of two?

f. At two cents each, how many apples can be bought for eight cents? for twelve cents? for sixteen cents? for six cents? for fourteen cents? for four cents? for ten cents?

g. Add threes to sixteen.

h. Sixteen is how many threes?

i. How many are five threes? two threes? four threes? three threes?

j. Twelve is how many threes? Six? Nine? Fifteen?

k. Seven is how many threes? Four? Ten? Sixteen? Thirteen? Five? Eleven? Eight? Fourteen?

l. At three cents each, what is the price of five oranges? of two? of four? of three?

m. At three cents each, how many oranges can you buy for nine cents? for ten cents? for twelve cents? for fourteen cents? for sixteen cents?

n. Add fours to sixteen.

o. Sixteen is how many fours?

p. How many are four fours? two fours? three fours?

q. Twelve is how many fours? Eight? Sixteen?

r. How many feet have four dogs? two dogs? three dogs?

s. At four cents each, how many bananas can you buy for sixteen cents? for eight cents? for twelve cents? for seven cents? for ten cents? for fifteen cents?

t. Sixteen is how many fives?

u. Sixteen is how many sixes?

v. Sixteen is how many sevens?

w. Sixteen is how many eights?

x.

$4 \times 3 = ?$	$5 \times 3 = ?$	$2 \times 2 = ?$
$4 \times 4 = ?$	$3 \times 4 = ?$	$3 \times 2 = ?$
$2 \times 7 = ?$	$7 \times 2 = ?$	$2 \times 3 = ?$
$2 \times 8 = ?$	$6 \times 2 = ?$	$2 \times 4 = ?$
$2 \times 6 = ?$	$4 \times 2 = ?$	$2 \times 5 = ?$

y.

$16 \div 2 = ?$	$16 \div 5 = ?$	$16 \div 6 = ?$
$16 \div 4 = ?$	$16 \div 7 = ?$	$16 \div 3 = ?$
$16 \div 8 = ?$		

z. $14 \div 2 = ?$ $14 \div 7 = ?$ $15 \div 5 = ?$

$12 \div 3 = ?$ $9 \div 3 = ?$ $12 \div 2 = ?$

$12 \div 4 = ?$ $6 \div 3 = ?$ $10 \div 2 = ?$

$12 \div 6 = ?$ $10 \div 5 = ?$ $8 \div 2 = ?$

Write these tables.

87. Cut a string sixteen inches long.   Mark it off in inches. Fold it into halves.

a. What is one half of sixteen inches?

b. Fold it again.   Into how many parts is it folded now?

c. What is the name of each part?   What is $\frac{1}{2}$ of $\frac{1}{2}$?

d. What is one fourth of sixteen inches?

e. Fold it again.   Into how many parts is it folded now?

f. What is the name of each part?   What is $\frac{1}{2}$ of $\frac{1}{4}$?

g. What is one eighth of sixteen?

h. Straighten it out.   Into how many two-inch pieces will it cut? $16 \div 2 = ?$

i. Into how many three-inch pieces will it cut? $16 \div 3 = ?$

j. Into how many four-inch pieces will it cut? $16 \div 4 = ?$

k. Into how many five-inch pieces will it cut? $16 \div 5 = ?$

l. Into how many six-inch pieces will it cut? $16 \div 6 = ?$

m. Into how many seven-inch pieces will it cut? $16 \div 7 = ?$

n. Into how many eight-inch pieces will it cut? $16 \div 8 = ?$

o. Into how many nine-inch pieces will it cut? $16 \div 9 = ?$

p. Into how many ten-inch pieces will it cut? $16 \div 10 = ?$

Cut a square of paper four inches on each side. Fold it into sixteen small squares.

q. How large is each small square?

Open it and fold it in halves.

r. What is one half of sixteen square inches?

s. Fold it again. What is one fourth of sixteen square inches?

t. Fold it again. What is one eighth of sixteen square inches?

u. Fold it again. What part of the whole square do you see now?

v. What is $\frac{1}{2}$ of $\frac{1}{8}$?

w. What is $\frac{1}{16}$ of 16 square inches?

x. How many fourths equal one half?

y. How many eighths equal one half? one fourth?

z. How many sixteenths equal one half? one fourth? one eighth?

ORAL AND WRITTEN EXERCISE.

$\frac{1}{2}$ of 16 = ?	$\frac{1}{8}$ of 16 = ?	$\frac{1}{16}$ of 16 = ?	$4 \times 4 = ?$
$\frac{1}{4}$ of 16 = ?	$\frac{3}{8}$ of 16 = ?	$\frac{3}{16}$ of 16 = ?	$8 \times 2 = ?$
$\frac{3}{4}$ of 16 = ?	$\frac{5}{8}$ of 16 = ?	$\frac{7}{16}$ of 16 = ?	$2 \times 8 = ?$
$16 \div 2 = ?$	$16 \div 5 = ?$	$16 \div 8 = ?$	
$16 \div 3 = ?$	$16 \div 6 = ?$	$16 \div 9 = ?$	
$16 \div 4 = ?$	$16 \div 7 = ?$	$16 \div 10 = ?$	

SECTION XV.

SEVENTEEN, EIGHTEEN, AND NINETEEN.

88. *a.* What numbers do you already know that make seventeen ?

b. What numbers do you already know that make eighteen ?
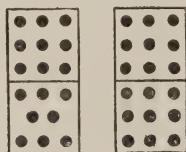
c. Nine and how many make seventeen ?

d. Nine and how many make eighteen ?

e. Take nine from seventeen ; what is left ?

f. Take nine from eighteen ; what is left ?

g. Take eight from seventeen ; what is left ?

h. Make a number story about nine and eight.

i. Make a number story about nine and nine.

j. Make a number story about seventeen less nine.

k. Make a number story about seventeen less eight.

l. Make a number story about eighteen less nine.

m. How many are two times nine ?

n. What is one half of eighteen ?

o. Look at the nine and nine tablet. How many dots in each vertical row?

p. How many vertical rows are there?

q. How many are three times six?

r. What is one third of eighteen?

s. How many dots are in each horizontal row?

t. How many horizontal rows are there?

u. How many are six times three?

v. What is one sixth of eighteen?

w. $9 + 8 = ?$ $17 - 8 = ?$

$9 + 9 = ?$ $18 - 9 = ?$

$17 - 9 = ?$

x. $6 \times 3 = ?$ $\frac{1}{2}$ of $18 = ?$

$3 \times 6 = ?$ $\frac{1}{3}$ of $18 = ?$

$2 \times 9 = ?$ $\frac{1}{6}$ of $18 = ?$

$9 \times 2 = ?$

89. *a.* Henry has nine books and George has eight books; how many books have they both?

b. Carrie has nine roses and nine pinks; how many flowers has she?

c. A store-keeper has nine blue-eyed dolls and eight black-eyed dolls; how many dolls has he?

d. One man has eighteen horses and another man has nine horses; how many more horses has the first man than the second?

e. In one field are seventeen sheep and in another field are eight sheep; how many more sheep are in the first field than in the second?

f. George had seventeen cents and spent nine cents; how many cents had he left?

g. John spent five cents for a top, four cents for a ball, and nine cents for a kite; how much money did he spend?

h. Jennie has three red pinks, five white ones, and nine pink ones; how many pinks has she?

i. Lucy had seventeen cents; she spent five cents for a book and four cents for a slate; how much money had she left?

j. A lady had seventeen apples; she gave four apples to her little boy and four to her little girl; how many apples had she left?

k. A man had eighteen horses; he sold five of them to one man, and four of them to another man; how many horses had he left?

l. John has six marbles, Willie has three marbles, and Arthur has eight marbles; how many marbles have they all?

m. George is nine years old; in how many years will he be seventeen?

n. Mary is eight years old; in how many years will she be seventeen?

o. Jennie is nine years old; in how many years will she be eighteen?

p. Eighteen is how many more than nine?

90. Add:

a	b	c	d	e	f	g
8	8	9	6	7	9	6
6	2	3	3	4	2	4
1	3	3	5	2	5	6

h	i	j	k	l	m	n
8	9	7	9	9	5	7
4	4	3	1	2	1	1
5	4	4	1	2	7	9

o	p	q	r	s	t	u
9	6	9	8	6	5	8
2	2	2	3	7	5	6
1	5	8	1	2	5	2

v	w	x	y	z
8	9	9	8	7
7	1	4	5	6
3	8	1	1	3

Subtract:

17	17	17	17	17	17	17	17	17
1	12	6	15	4	13	8	3	10

17	17	17	17	17	17	17	18	18
2	14	9	16	5	11	7	5	8

18	18	18	18	18	18	18	18	18
14	2	11	16	1	13	4	15	6

18	18	18	18	18	18
9	12	7	17	10	3

91. *a.* How many twos in seventeen?

b. At two cents each, how many apples could you buy for seventeen cents?

c. Seventeen is how many threes?

d. At three cents each, what is the price of five tops?

e. How many tops at three cents each can you buy for seventeen cents?

f. How many fours in seventeen?

g. How many pecks are there in four bushels?

h. Seventeen pecks are how many bushels?

i. How many fives are there in seventeen?

j. At five cents each, what is the cost of three balls?

k. To how many persons could you give five cents each, if you had seventeen cents, and how many cents would you have left?

l. How many sixes are in seventeen?

m. A lady gave six books to each of her two children; how many books did she give away?

n. If you had seventeen flowers, to how many people could you give six flowers each, and how many flowers would you have left?

o. How many sevens in seventeen?

p. How many days are there in two weeks?

q. Seventeen days are how many weeks?

r. How many eights in seventeen?

s. How many quarts are there in two pecks?

t. Seventeen quarts are how many pecks?

u. How many nines in seventeen?

v. How many tens in seventeen?

w. $8 \times 2 = ?$ $3 \times 5 = ?$ $2 \times 8 = ?$
      $5 \times 3 = ?$ $2 \times 6 = ?$
      $4 \times 4 = ?$ $2 \times 7 = ?$

x. $16 \div 2 = ?$ $15 \div 5 = ?$ $16 \div 8 = ?$
      $15 \div 3 = ?$ $12 \div 6 = ?$ $16 \div 9 = ?$
      $16 \div 4 = ?$ $14 \div 7 = ?$ $16 \div 10 = ?$

y. $17 \div 2 = ?$ $17 \div 5 = ?$ $17 \div 8 = ?$
      $17 \div 3 = ?$ $17 \div 6 = ?$ $17 \div 9 = ?$
      $17 \div 4 = ?$ $17 \div 7 = ?$ $17 \div 10 = ?$

92. Find these out for yourselves :

$18 \div 2 = ?$	$19 \div 2 = ?$	$\frac{1}{2}$ of $18 = ?$
$18 \div 3 = ?$	$19 \div 3 = ?$	$\frac{1}{3}$ of $18 = ?$
$18 \div 4 = ?$	$19 \div 4 = ?$	$\frac{1}{6}$ of $18 = ?$
$18 \div 5 = ?$	$19 \div 5 = ?$	$\frac{1}{9}$ of $18 = ?$
$18 \div 6 = ?$	$19 \div 6 = ?$	
$18 \div 7 = ?$	$19 \div 7 = ?$	
$18 \div 8 = ?$	$19 \div 8 = ?$	
$18 \div 9 = ?$	$19 \div 9 = ?$	
$18 \div 10 = ?$	$19 \div 10 = ?$	

93. *a.* At two cents each, how many tops can you buy for nineteen cents ?

b. How many quarts are there in eighteen pints ?

c. How many separate triangles can you lay with eighteen sticks ?

d. At three cents each, how many pencils can you buy with nineteen cents ?

e. How many gallons are eighteen quarts ?

f. How many pecks are nineteen bushels ?

g. If you have eighteen apples, to how many people can you give five apples each, and how many will you have left ?

h. How many five-inch sticks can be cut from a nineteen-inch stick ?

i. How many six-inch sticks can be cut from an eighteen-inch stick ?

j. At six cents each, how many flags can be bought for eighteen cents ? for nineteen cents ?

k. Eighteen days are how many weeks ?

l. Nineteen days are how many weeks ?

m. At eight dollars each, how many chairs can be bought for eighteen dollars ?

n. At eight cents each, how many kites can be bought for nineteen cents ?

o. If a boy can ride nine miles an hour on a bicycle, how many hours will it take him to ride eighteen miles ?

p. How many tables at nine dollars each can be bought for nineteen dollars ?

q. If a man earns eighteen dollars in two weeks, how much does he earn in one week ?

r. If a lady divided eighteen pencils equally among her three children, how many pencils did each one receive ?

s. Henry had eighteen cents and spent one sixth of them ; how much did he spend ?

t. John had eighteen books and gave away one ninth of them ; how many did he give away ?

94.　　　REVIEW EXERCISES.

*2	*3	*4	*1	*7	*2	*3	*2	*4
*4	*5	*3	*5	*1	*6	*3	*7	*4
*1	*2	*1	*3	*2	*5	*8	*2	*4
*6	*5	*1	*6	*3	*3	*1	*2	*5

| *3 | *5 | *6 | *3 | *1 | *6 | *4 | *1 | *5 |
| *4 | *1 | *2 | *2 | *7 | *3 | *1 | *8 | *2 |

| *3 | *1 | *7 | *1 | *4 | *2 | *5 | *6 | *1 |
| *1 | *4 | *2 | *3 | *2 | *1 | *4 | *1 | *2 |

a. Add at sight.

b. Add, calling * in the upper number 1.

c. Add, calling * in the lower number 1.

| *3 | *7 | *9 | *3 | *6 | *4 | *9 | *5 | *4 |
| *2 | *1 | *4 | *1 | *2 | *3 | *2 | *4 | *1 |

| *7 | *9 | *5 | *9 | *8 | *5 | *8 | *6 | *7 |
| *2 | *8 | *1 | *3 | *7 | *2 | *2 | *1 | *4 |

| *9 | *4 | *9 | *8 | *6 | *5 | *9 | *2 | *7 |
| *5 | *2 | *1 | *3 | *4 | *3 | *6 | *1 | *5 |

| *7 | *8 | *9 | *6 | *8 | *8 | *6 | *7 | *8 |
| *6 | *4 | *7 | *3 | *6 | *1 | *5 | *3 | *5 |

a. Give remainders at sight.

b. Give remainders substituting 1 for * in upper number.

c. Give remainders substituting 1 for * in both numbers.

SECTION XVI.

TWENTY.

95. *a.* What two numbers make ten ?

b. What other two numbers make ten ?

c. What other two numbers make ten ?

d. What other two numbers make ten ?

e. What other two numbers make ten ?

f. Complete these additions, putting the numbers in place of *
which will make the sums 10 :

6	7	9	8	5	4 *	1	3	2
*	*	*	*	*	*	*	*	*
10	10	10	10	10	10	10	10	10

g. How many are two tens ?

h. If we made each of those upper numbers 10 larger, what would the answers be ?

i. Complete these additions, putting the numbers in place of *
which will make the sums 20 :

16	17	19	18	15	14	11	13	12
*	*	*	*	*	*	*	*	*
20	20	20	20	20	20	20	20	20

j. Subtract :

10	10	10	10	10	10	10	10	10
2	5	6	8	7	4	9	1	3

k. Subtract :

20	20	20	20	20	20	20	20	20
2	5	6	8	7	4	9	1	3

l. Subtract, putting 1 in place of * :

20	20	20	20	20	20	20	20	20
*2	*5	*6	*8	*7	*4	*9	*1	*3

96. Draw an oblong five inches long and four inches wide. Divide it into square inches.

Draw another oblong ten inches long and two inches wide. Divide it into square inches.

a. How many square inches are in the first oblong?

b. How many square inches are in the second oblong?

Answer these questions, looking at the oblongs :

c. How many are four times five?

d. How many are five times four?

e. How many are two times ten?

f. How many are ten times two?

g. How many twos are there in twenty?

h. How many fours are there in twenty?

i. How many fives are there in twenty?

j. How many tens are there in twenty?

k. What is one half of twenty?

l. What is one fourth of twenty?

m. What is one tenth of twenty?

n. What is one fifth of twenty?

Find these out for yourselves:

$20 \div 3 = ?$	$20 \div 7 = ?$	$20 \div 9 = ?$
$20 \div 6 = ?$	$20 \div 8 = ?$	

SECTION XVII.

MISCELLANEOUS REVIEW.

97. Draw an inch square. Divide it into two equal parts.

a. What is the name of each part?

b. How many halves are there in a square? in a circle? in anything?

c. If half of anything is taken away, what is left?

Divide each half of the square into halves.

d. Into how many parts is the square divided?

e. What is the name of each part?

f. How many fourths in a square? in a circle? in anything?

g. If one fourth of anything is taken away, what is left?

h. How many fourths are equal to one half?

i. If three fourths of anything are taken away, what is left?

Draw a square. Divide it into three equal parts by two vertical lines.

j. What is the name of each part?

k. If one third of anything is taken away, what part of it is left?

l. If two thirds of anything are taken away, what part of it is left?

Draw a line five inches long.   Divide it into five equal parts.

m. What part of the line is one inch?

n. How many fifths are there in the whole of the line?

o. If one fifth of anything is taken away, what part of it is left?

p. If two fifths of anything are taken away, what part of it is left? four fifths? three fifths?

Draw a square.   Divide it into three equal parts by two vertical lines, then draw the horizontal diameter.

q. Into how many parts is the square divided?

r. What is the name of each part?

Draw a circle and divide it into sixths.

s. How many sixths are there in the whole of anything?

t. How many sixths equal one half?

u. How many sixths equal one third?

v. If one sixth of anything is taken away, what part of it is left?

w. If five sixths of anything are taken away, what part of it is left?

Draw a circle and divide it into eighths.

Draw a square and divide it into eighths.

x. How many eighths are equal to one fourth?

y. How many eighths are equal to one half?

z. How many eighths are in the whole of anything?

ORAL AND WRITTEN EXERCISE.

a. If anything is divided into two equal parts, each part is called one ——.

b. If anything is divided into three equal parts, each part is called one ——.

c. If anything is divided into four equal parts, each part is called one ——.

d. If anything is divided into five equal parts, each part is called one ——.

e. If anything is divided into six equal parts, each part is called one ——.

f. If anything is divided into seven equal parts, each part is called one ——.

g. If anything is divided into eight equal parts, each part is called one ——.

h. If anything is divided into nine equal parts, each part is called one ——.

i. If anything is divided into ten equal parts, each part is called one ——.

j. $\frac{1}{2} + \frac{1}{2} = ?$ $\quad$ $\frac{3}{4} + \frac{1}{4} = ?$ $\quad$ $\frac{1}{2} + \frac{1}{4} = ?$ $\quad$ $\frac{1}{4} + \frac{1}{8} = ?$

$\frac{1}{3} + \frac{1}{3} = ?$ $\quad$ $1 - \frac{1}{5} = ?$ $\quad$ $\frac{1}{5} + \frac{2}{5} = ?$ $\quad$ $1 - \frac{3}{8} = ?$

k. One fourth is what part of one half?

l. One eighth is what part of one half?

m. One eighth is what part of one fourth ?

n. One sixth is what part of one half ?

o. One sixth is what part of one third ?

p. One ninth is what part of one third ?

q. One tenth is what part of one half ?

r. One tenth is what part of one fifth ?

98. *a.* How many pints are there in a quart ?

b. How many quarts are there in a gallon ?

c. How many quarts are there in a peck ?

d. What sort of things do we measure in quarts ?

e. What sort of things do we measure in gallons ?

f. What sort of things do we measure in pecks ?

g. How many pecks are there in a bushel ?

h. How many quarts are there in half a gallon ?

i. How many pecks are there in half a bushel ?

j. How many quarts are there in half a peck ?

k. How many pecks are there in a fourth of a bushel ?

l. How many quarts are there in a fourth of a peck ?

m. How many quarts are there in an eighth of a peck ?

n. If sixteen apples are divided equally among eight boys, how many apples does each boy receive ?

o. If fourteen pencils are divided equally among seven persons, how many pencils does each person receive ?

p. If five chairs are worth fifteen dollars, what is each chair worth ?

q. If a man walked eighteen miles in six hours, how far did he walk each hour?

r. If eighteen bananas were divided equally among nine children, how many bananas did each child receive?

s.	$\frac{1}{2}$ of $4 = ?$	$\frac{1}{2}$ of $8 = ?$	$\frac{1}{6}$ of $12 = ?$	$\frac{1}{9}$ of $18 = ?$
t.	$\frac{1}{3}$ of $6 = ?$	$\frac{1}{4}$ of $8 = ?$	$\frac{1}{6}$ of $18 = ?$	$\frac{1}{4}$ of $16 = ?$
u.	$\frac{1}{4}$ of $4 = ?$	$\frac{1}{5}$ of $10 = ?$	$\frac{1}{8}$ of $16 = ?$	$\frac{1}{5}$ of $15 = ?$
v.	$\frac{1}{3}$ of $18 = ?$	$\frac{1}{3}$ of $12 = ?$	$\frac{1}{4}$ of $12 = ?$	$\frac{1}{2}$ of $16 = ?$
w.	$\frac{1}{7}$ of $14 = ?$	$\frac{1}{2}$ of $18 = ?$	$\frac{1}{2}$ of $14 = ?$	$\frac{1}{3}$ of $9 = ?$
x.	$\frac{1}{3}$ of $15 = ?$	$\frac{1}{8}$ of $8 = ?$	$\frac{1}{2}$ of $10 = ?$	$\frac{1}{2}$ of $12 = ?$
y	$\frac{1}{4}$ of $20 = ?$	$\frac{1}{2}$ of $6 = ?$	$\frac{1}{10}$ of $20 = ?$	$\frac{1}{5}$ of $5 = ?$
z.	$\frac{1}{2}$ of $2 = ?$	$\frac{1}{5}$ of $20 = ?$	$\frac{1}{6}$ of $6 = ?$	$\frac{1}{2}$ of $20 = ?$

99. ADDITION EXAMPLES.

(NOTE TO TEACHERS. — These examples added by giving results only, first of the two lower numbers, then of the whole, give a review of all of the primary combinations in number upon which higher additions depend.)

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
6	7	5	9	8	9	9	9	5
2	4	6	2	4	3	1	3	5
5	1	1	2	2	2	1	3	1

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
8	9	9	3	8	4	4	6	6
3	4	2	1	4	2	8	2	3
1	3	1	7	6	7	2	6	7

a	b	c	d	e	f	g	h	i
6	8	2	9	3	9	9	7	6
6	5	9	4	1	5	4	5	1
3	3	1	5	8	5	4	2	4

a	b	c	d	e	f	g	h	i
7	8	6	7	4	8	8	4	7
2	2	1	1	1	3	1	7	6
4	3	5	3	6	4	2	1	4

a	b	c	d	e	f	g	h	i
5	3	5	5	7	1	7	8	2
7	2	6	7	3	1	3	5	8
2	8	2	3	6	9	5	4	1

100. *a.* John is nine years old; in how many years will he be fifteen years old?

b. Carrie has eight books and Lucy has nine books; how many books have they both?

c. George rode eight miles in one hour and seven miles the next hour; how many miles did he ride in both hours?

d. A man earned four dollars one day, three dollars the next day, and five dollars the next day. How much did he earn in the three days?

e. A farmer owns two horses, nine cows, and eight sheep; how many animals has he?

f. A man had fifteen cows and sold six of them; how many had he left?

g. George is eighteen years old and Henry is nine years old; how much older is George than Henry?

h. Walter rode seventeen miles in two hours; the first hour he rode eight miles; how far did he ride the second hour?

i. Lucy had seventeen roses; she gave six of them to her mother and six of them to her teacher; how many roses had she left?

j. A man had fifteen horses; he sold four of them to one man and five of them to another man; how many horses had he left?

k. John had sixteen cents; he spent seven cents for a top and six cents for a book; how much money had he left?

l. How far can a man walk in four hours if he walks three miles each hour?

m. How many days are there in two weeks?

n. How many quarts are there in two pecks?

o. How many feet long is a pole which is six yards long?

p. If a man can walk three miles an hour, how many hours would it take him to walk eighteen miles?

q. At six cents each, how many kites can be bought for eighteen cents?

r. How many weeks are fourteen days?

s. How many bushels are sixteen pecks?

t. Mary had fourteen pinks and gave one half of them to her sister; how many pinks did she give her sister?

u. George had eighteen cents and spent one third of them for a top; what did the top cost?

v. Henry paid sixteen cents for four books; what did each one cost?

w. Jennie had fifteen roses, and gave one fifth of them away; how many did she give away?

x. Lucy had twelve cents and spent half of them for candy; how many cents had she left?

y. Walter had twelve cents; he spent one third of them for ink and the rest for paper; what did the paper cost?

z. Willie had sixteen cents and spent one fourth of them; how many cents had he left?

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